

The
Association of Special Libraries and
Information Bureaux

Report of Proceedings
of the
SIXTEENTH CONFERENCE

organised to be held at

Nottingham University College
SEPTEMBER 15th to 18th, 1939

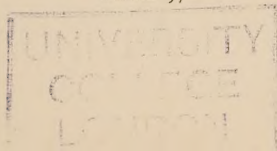
THE OBJECTS OF THE ASSOCIATION ARE: To examine, foster, and co-ordinate the activities of special libraries, information bureaux, and similar services; to act as a clearing-house for these services; to develop the usefulness and efficiency of special libraries and information bureaux under whatever titles they may function; and generally to promote, whether by conferences, meetings, or other means, the wider dissemination and the systematic use of published information.

The Association aims at assisting members who desire information of any kind to get into touch with the appropriate library or other body specialising on the subject; it does not itself attempt to build up any centralised organisation to provide the detailed information direct.

PUBLISHED BY THE ASSOCIATION OF SPECIAL LIBRARIES
AND INFORMATION BUREAUX
31, MUSEUM STREET, LONDON, W.C.1

1939

PRICE 5/-



The Association of Special Libraries and Information Bureaux

31, MUSEUM STREET, LONDON, W.C.1.

President : SIR HARRY LINDSAY, K.C.I.E., C.B.E.

COUNCIL :

Chairman and Honorary Treasurer :
A. F. RIDLEY, F.L.A., British Non-
Ferrous Metals Research Associa-
tion.

Honorary Secretary : EDWARD CARTER,
Royal Institute of British Architects.

THEODORE BESTERMAN.

S. C. BRADFORD, D.Sc.
British Society for International
Bibliography.

R. BRIGHTMAN, M.Sc., F.I.C.
I.C.I. (Dyestuffs Group), Limited.

O. F. BROWN.
Department of Scientific and Indus-
trial Research.

B. C. CURLING.
Institute of Marine Engineers.

MISS B. M. DENT, M.Sc.
Metropolitan - Vickers Electrical
Company, Limited.

J. J. EATON.
The Yorkshire Post.

ALEXANDER FARQUHARSON, M.A.,
O.B.E.
Institute of Sociology.

G. ELLIS FLACK, M.A.
University College, Nottingham.

MISS M. GILBERT, F.L.A.
Brentford and Chiswick Public
Libraries and Museums.

C. H. GRAY.
International Executive Council,
World Power Conference.

B. M. HEADICAR, F.L.A.

MISS D. W. HUGHES.
Career Advisory Bureau and *Journal*
of Careers.

PROFESSOR R. S. HUTTON, D.Sc.,
M.A.

H. H. JOHNSON, M.I.MECH.E.,
M.I.E.E.
Engineering, Limited.

E. LANCASTER JONES, B.A.
The Science Library.

E. E. LOWE, B.Sc., PH.D.
Leicester Municipal Libraries,
Museum and Art Gallery.

E. R. MCCOLVIN, F.L.A.
The Polytechnic.

F. C. MITCHELL.
London Press Exchange, Limited.

LUXMOORE NEWCOMBE, T.D., M.A.,
LL.D., F.L.A.
National Central Library.

MRS. C. S. ORWIN, M.A.
Agricultural Economics Research
Institute.

MISS E. W. PARKER.
Research and Development Dept.,
The Mond Nickel Company, Ltd.

J. G. PEARCE, M.Sc., F.INST.P.,
M.I.E.E.
British Cast Iron Research Associa-
tion.

W. M. WILLCOX.
The British Council.

General Secretary : MISS E. M. R. DITMAS, M.A.

Contents.

	PAGE
INTRODUCTORY NOTE	6
The Imperial Institute as an Information Centre.	
SIR HARRY LINDSAY, K.C.I.E., C.B.E. (Director of the Imperial Institute and President-elect of the Association of Special Libraries and Information Bureaux)	10
The Accessibility of British University Thesis Literature.	
DR. LUXMOORE NEWCOMBE (National Central Library)	21
The Accessibility of Thesis Literature of the United States.	
MR. WATSON DAVIES (President: American Documentation Institute)	31
Notes on Thesis Literature in France.	
M. JULIAN CAIN (Director: Bibliothèque Nationale)	35
Register of Technical House Journals.	35
Agriculture: an Art or an Industry?	
MR. C. S. ORWIN, M.A. (Director: Agricultural Economics Research Institute)	36
Authors' Abstracts as an Aid to Documentation.	
DR. GORDON S. FULCHER	41
Errata and Corrigenda.	
DR. J. N. GOLDSMITH	46
The Cinema and the Information Services.	
MR. THOMAS BAIRD (Film Centre Limited)	50
B.B.C. Libraries and Information Bureaux.	
MR. GUY POCOCK (British Broadcasting Corporation)	62
Microphotography in 1939.	
DR. LEONARD SAYCE (King's College Library, Newcastle-upon-Tyne)	77
ANNUAL GENERAL MEETING	84
Report on the Year's Work of ASLIB	7
Accounts for the Year ended 30th June, 1939	87
Index	91

Introductory Note.

THE Sixteenth Annual Conference of the Association of Special Libraries and Information Bureaux was planned to be held at Nottingham University College during the week-end September 15th to 18th, 1939. Preparations for it were continued up to the outbreak of war when it was reluctantly decided that it must be cancelled. By this date most of the papers had already been prepared and were in print, and the Council of the Association decided that the Report should be issued as usual although, of course, the discussions, which form such a valuable part of the proceedings, could not be included. The editors take this opportunity of acknowledging their grateful thanks to all contributors and specially to those whose papers were not completed at the time of cancellation and who afterwards wrote them in difficult circumstances.

At the Annual General Meeting held on November 24th, 1939, it was decided to organise afternoon meetings at which an opportunity might be given for the discussion of certain of the papers (see p. 86). Full notice of these meetings will be circulated to all members.

Copies of the Reports of the previous Conferences are still available, with the exception of the Report of the Tenth Conference, which is now out of print. The Reports are indexed in the Industrial Arts Index of the H. W. Wilson Company of New York.

31, MUSEUM STREET,
LONDON, W.C.1

The Year's Work of ASLIB, 1938-9.

A Brief Survey.

The Fifteenth Annual Conference was held at Lady Margaret Hall, Oxford, from September 23rd to 26th, 1938, and overlapped the last three days of the Fourteenth Conference of the International Federation for Documentation which was held at the same college. Inevitably this affected the character of the ASLIB Conference, but certainly in retrospect the occasion may be reckoned as thoroughly successful, and it is hoped that the many useful contacts formed between the members of the two organisations may bear valuable fruit in the future.

For the second year in succession, the ASLIB Council has found it wise to advocate a policy of consolidation, and ASLIB has undertaken no new ventures in the year under review. Therefore, as shown in the audited accounts, printed on p. 87, the general turnover has been lower. Nevertheless, the policy has been justified by the opportunity given for the cultivation of valuable contacts, the re-organisation of sections of the information work, and the following up of certain enquiries which have resulted in an increase of membership.

The Council learned with regret that the President, Sir William Beveridge, could not undertake a second year of office during 1939-40 though he hoped to be able to resume his contact with ASLIB at some later period. The Council was, therefore, particularly glad that Sir Harry Lindsay, K.C.I.E., C.B.E., Director of the Imperial Institute and President of ASLIB for the year 1937-8, was willing to accept nomination as President again for the forthcoming year.

THE ASSOCIATION'S COUNCIL AND COMMITTEES.

The first meeting of the new Council, elected at the last Annual General Meeting, was held on November 14th, 1938, when Mr. Arthur F. Ridley was re-elected to the Chair and Mr. H. H. Johnson was re-elected as Vice-Chairman. The Council received with great regret the resignations of Mr. A. A. Gomme, Librarian of the Patent Office Library, and of Mr. C. A. Spencer, who had represented the Department of Scientific and Industrial Research.

During the year six meetings of the Council were held. A full list of the personnel will be found on p. 4.

The Council appointed a Committee consisting of Mr. R. Brightman, Miss B. M. Dent, Mr. J. J. Eaton, Mr. G. Ellis Flack, Mr. C. H. Gray, Mr. B. M. Headicar, Professor R. S. Hutton, Miss D. W. Hughes, Mrs. C. S. Orwin, Miss E. W. Parker, Mr. J. G. Pearce, and the Honorary Officers to make arrangements for the 1939 Conference.

FINANCE AND MEMBERSHIP.

The audited accounts for the year ended June 30th, 1939, have been circulated to all members and will come before the Annual General Meeting for consideration. They will be found printed on p. 87.

Although the balance in hand of £94 at the end of the year was somewhat lower than that at June 30th, 1938, the general financial position was definitely better. Income exceeded expenditure again,

though by a very narrow margin. It is greatly to be hoped that the advantage thus gained may be improved upon during the coming year, and that by degrees a small reserve of working capital may be built up which will enable ASLIB to undertake those projects which, however desirable, must now be put on one side because there is no fund from which they may be financed in the initial stages.

The ASLIB membership stands at 334 as against 325 at the same period last year. The steady increase during a year of international crisis has been satisfactory, but is disappointingly slow to those who realise how much more ASLIB could do with an adequate income.

ASLIB PUBLICATIONS.

The number of non-member subscribers to the *ASLIB Book-List* (quarterly recommendations of recently published Scientific and Technical Books) remains constant at about 200, making the total circulation, including members, approximately 510. A point of interest is the number of overseas subscribers, orders for the periodical coming from such distant parts as Ceylon, Australia, New Zealand, South Africa, Argentine, Chile, Brazil, China, Iran, Iraq, Palestine, the U.S.S.R., etc.

The Council elected the following to act as Editing Committee for the *Book-List*: Mr. B. C. Curling, Miss B. M. Dent, Miss Mizpah Gilbert, Professor R. S. Hutton, Mr. E. Lancaster-Jones, Dr. E. E. Lowe, Mr. E. R. McColvin, Mr. A. F. Ridley, Mr. J. D. Stewart, and Mr. J. E. Walker.

The possibility of publishing a new edition of the *ASLIB Directory* has been under consideration by the Directories Committee. Lack of a financial reserve adequate to meet the initial expenditure still forms an insuperable barrier to this undertaking.

ASLIB Information continues to fulfil a useful function as a medium for the interchange of information between members of the Association. Our grateful thanks are due to those who have kindly contributed reviews and articles.

ASLIB's other publications, such as the *Select List of British Scientific and Technical Books* (second edition), and the *Classified List of Annuals and Year Books* continue to sell satisfactorily.

THE ASLIB ENQUIRY BUREAU.

A number of members make regular use of this service. During the year, including those enquiries which were specifically concerned with the locating of copies of books or periodicals for purposes of loan, over 700 requests for information were received. They varied from enquiries as to the author of *The Breed of the Treshams* or the whereabouts of the *MS. Common-place book of one Thomas Rawlins*, to sources of information concerning electrical gramophone recording, or the manufacture of all kinds of sausages.

ASLIB REGISTER OF SPECIALIST TRANSLATORS.

One hundred and eight translators are now registered, but the service is not nearly as much used as it deserves. It is discouraging to note the number of times on which an enquiry fails to end in the definite placing of work. On most occasions this seems to be due to the fact that the enquirer entirely fails to realise that skilled technical

translation is not cheap, although a little reflection would surely persuade him that a fluent knowledge of the language in addition to first-hand experience of some highly skilled profession cannot usually be obtained at ordinary commercial rates.

THE ASLIB LUNCHEON.

The Association held its second Annual Luncheon at the Café Royal, London, on April 28th, 1939, at which nearly seventy people were present. The Chair was taken by Sir William Beveridge, K.C.B., F.B.A., LL.D., D.C.L., who emphasised the value of ASLIB's function as a distributor of Information.

The two guests of honour were Sir Stephen Gaselee, K.C.M.G., C.B.E., M.A., Librarian of the Foreign Office, and Mr. Stephen A. Heald, Secretary of the Information Department of the Royal Institute of International Affairs, both of whom referred from different angles to the importance of accuracy in information in international affairs—a topical choice of subject since the luncheon unfortunately coincided with the spring international crisis.

At the close of this summary of the year's work, the Council wishes to express its sincere thanks to Sir William Beveridge. During his twelve months as President of the Association his active interest has been greatly appreciated, and it is to be hoped that he will be able to resume his position as President on some later occasion.

ARTHUR F. RIDLEY, *Chairman of Council.*

EDWARD CARTER, *Hon. Secretary.*

E. M. R. DITMAS, *General Secretary.*

The Imperial Institute as an Information Centre.

By SIR HARRY LINDSAY, K.C.I.E., C.B.E.

Director of the Imperial Institute and President of the Association of Special Libraries and Information Bureaux.

I have been asked, in this address, to give some account of the work of the Imperial Institute ; and, indeed, I know of no institution better qualified to furnish material for just those studies which are germane to the work of this Association, for the Institute is itself, on its scientific and technical side, an Information Bureau, with interests which are Empire-wide and sources of information which are world-wide. Moreover, it possesses a Library which is "special" in the sense that it does not attempt to cover the range of the ordinary lending library but caters for specialists in the technique of raw materials, their sources, production, processing and trade. The raw materials we are called upon to handle and advise upon are of Empire origin ; yet we must also keep an eye on those of foreign origin, for comparative and competitive purposes. That is why, as I said above, the interests we serve are Empire-wide, but the sources of our information must also be world-wide.

But I think I can fairly assert one more claim to the attention of an ASLIB audience ; not merely on account of our information bureau, with its special library, but also on account of the educational work carried out through our Exhibition Galleries, Cinema, Empire Film Library and Empire Lantern-slides. In other words, whilst our primary function is to collect and disseminate technical information regarding the resources of the Empire, animal, vegetable and mineral, we are also called upon to furnish general information about the Empire, particularly its geography and its economic products, and chiefly for the use of schools. The Information Bureau, at this point, leaves the domain of the written word and passes to the domain of visual instruction. We find ourselves here in a realm where Science allies itself with Art ; and, indeed, there is no more difficult technique, nor one which produces happier results, if successful, than the technique of presenting scientific facts artistically. However, for the purpose of this address our effort to provide visual instruction in the geography and economic resources of the Overseas Empire, is secondary to our function as a Special Library and Information Bureau ; so let first things come first.

Before going further, let me, in as few words as possible, sketch out the programme for this talk, the angles from which I propose to attack my subject. First, I propose to give some account of the Imperial Institute itself and, particularly, of the functions which we are called upon to perform, at whose bidding and in whose interests—these will be answers to the question why the Imperial Institute exists. Second, what are our resources and methods—in other words, how the Institute functions. Third, what results are achieved ? Why, How and What, are the questions, and now for the answers.

The Imperial Institute was founded in 1887, and completed in 1893 as a great national memorial of the Golden Jubilee of Queen

Victoria. Not only the United Kingdom but also many countries of the Overseas Empire contributed the £400,000 required for its construction and endowment. King Edward VII, then Prince of Wales, was the first President of the Institute, which in his own words was intended "to promote the utilisation of Empire products and to make better known the life, resources and the industries of the various countries which comprise the British Empire." This primary character of a clearing house of information about the resources of the Empire, the Institute has never lost. The following is an account of the actual tasks set before us, as summarised in the Imperial Institute Act of 1925 :

- (1) To promote the commercial, industrial and educational interests of the Empire.

That is a pretty wide instruction, in all conscience ! But in case there should be any misunderstanding as to its scope, there follows :

- (2) To collect and disseminate the following classes of information :
 - (a) Possible uses of and markets for new raw materials ;
 - (b) New uses of and markets for raw materials already known ;
 - (c) Sources, production, supplies, cost, consumption and requirements of raw materials and legislation relating thereto ;
 - (d) The best means of increasing supplies or of creating new sources of supplies of raw materials within the Empire ;
 - (e) The best means of treating them and of preparing them for marketing ;
 - (f) Technical and scientific information bearing upon the industries of the Empire.

Throughout, the term raw materials is held to cover also semi-manufactured products. Note that it is only when we come to sources of supplies of raw materials and information about industries that the scope of the information is limited to the Empire. This limitation is, of course, quite natural. Information about raw materials is received from all sources, both Empire and foreign, but is to be applied in the interests of the development of the resources and industries of the Empire.

- (3) To advise on the development of the resources of the Empire in raw materials in order that such resources may be made available for the purposes of industry and commerce and of Imperial defence.

Here the question of Imperial defence is mentioned for the first time and is brought definitely within the scope of objects before the Institute.

- (4) To conduct in the laboratories of the Institute preliminary investigations of raw materials and when it may be deemed advisable to arrange for more detailed investigation by appropriate scientific or technical institutions.

This is important. It means that we are not called upon to undertake research, but to carry out investigational work of practical value in the execution of the duties assigned to us. Requests for research are passed on to institutions competent to undertake it.

- (5) To collect samples of raw materials having a definite value in industry and commerce ; and
- (6) To co-operate with other agencies within the Empire formed for similar purposes.

These two duties are consequential and obvious. The second one means that we maintain close contact with technical departments of Governments and Administrations throughout the Empire. Those which concern us most closely are naturally those which deal with Agriculture, Forestry, Fisheries, Veterinary Science, Geological Surveys, Mining, and Chemical Industries. Technical officers of the Overseas Empire, home on leave or deputation, are always invited to visit the Institute. We find these visits most helpful and the officers themselves are understood to benefit by the knowledge they thus gain of the facilities available to them in the Laboratories and Information Offices of the Institute. The popularity of these visits may be gauged by the fact that whereas during the whole of 1938 the number of officers thus visiting us from technical departments of the Overseas Empire was 110, the number during the first six months only of the year 1939, has been 91.

- (7) Finally, to maintain for public information and instruction in the Exhibition Galleries of the Institute exhibitions illustrative of the resources and development of the Empire and of its life, scenery and progress and where practicable to organise from time to time temporary exhibitions of a similar nature elsewhere.

This relates to our activities under the head of Visual Instruction in the Empire, which I mentioned briefly in my introduction and to which I shall have occasion to refer again, later.

I hope I haven't bored you with this list of the why's of our existence. I thought it necessary to describe them in some detail partly because they are necessary to a proper grasp of the scope of our information work, partly because they explain the range and variety of the methods which we have to employ.

Now I turn to the more interesting account of How we work ; in other words, what are our resources and what is the machinery we employ.

So far as the actual task of administration is concerned, this is defined in terms of the Imperial Institute Act of 1925. We are not a Government Department but an institution responsible to Parliament through the Department of Overseas Trade whose Secretary, the Rt. Hon. R. S. Hudson, M.P., is President of our statutory Board of Governors, while Sir Quintin Hill, K.C.M.G., O.B.E., the Comptroller-General of the same Department, is Vice-President. Representatives of the Treasury, Board of Trade, Colonial Office, Ministry of Agriculture and Fisheries and of the Department of Scientific and Industrial Research are Governors ; also representatives of the Dominion and Indian Governments and of scientific and commercial interests. I was appointed Director nearly five years ago. Our finances are derived from contributions made to us annually by the United Kingdom, Dominion, Indian, Burma and Colonial Governments. The Indian States of Hyderabad, Mysore, Travancore and Cochin also contribute.

But we are chiefly concerned to-day with the technical and scientific aspects of our work. From this point of view, the Institute may be regarded as a great Information Bureau with a staff of some forty scientists. For the sake of convenience, the Bureau is divided into two main Departments, one to handle enquiries relating to Plant and Animal Products and the other Mineral Resources. Each Department has its own laboratories, intelligence offices, and indexing staff. There is

a single Statistical Section serving both Departments. The Library also serves both Departments, although for the sake of convenience the volumes dealing with Mineral Resources are kept separate from those in our general Library. This arrangement is due to the fact that the old Imperial Mineral Resources Bureau, organised as a separate entity in 1919 as a result of lessons gained from the experience of the Great War, was amalgamated with the Institute in 1925 to form the nucleus of our Mineral Resources Department, and has retained its own separate library ever since.

But before I describe the scope and objects of the Library, let me first say something of the Institute as an Information Bureau. It is the Library, after all which serves the Bureau rather than the Bureau the Library. And, of course, the Bureau is also served by the Indexing and Statistical Sections. Yet I must frankly admit that although the primary function of the Institute is that of an Information Bureau, I am straining a good deal the meaning of the word Bureau in applying it to the Institute. Imagine to yourself, please, a Bureau which has its own laboratories, its own compilers and its own publications; and you will realise at once the risk of misunderstanding. For in common parlance a bureau, when it isn't a handy piece of furniture, is the kind of office which collects and disseminates information—a sort of “broker” among offices, which puts the seeker for information in touch with sources of supply. But we are not just brokers, we are not even just merchants, for we are busy also creating from our own investigations results which we pass to the client who asked for the investigation to be done (and who in nine cases out of ten sent us the materials to be analysed or tested); results which we also store in our records and, if worth while, publish in our monographs or in our quarterly *Bulletin*, to be dispensed to other enquirers should the latter materialise. I don't say that some of this information specially collected in response to special demands is not kept confidential. It certainly is, at request. But requests for results to be kept confidential are on the whole uncommon; and most of our results are of a character which is not confidential—indeed many of them are, as I say, published in our monographs or in our quarterly *Bulletin*.

And now a word as to the sources and scope of our enquiries. I hope I have not emphasised our laboratory work unduly or given the impression that most of our enquiries involve chemical tests. That is by no means the case, for by far the greater proportion of our enquiries are simply for information regarding raw materials, their qualities, prices, supplies and demands, markets and so on; it is the minority which come linked with a particular specimen or sample demanding chemical investigation or mechanical test in our laboratories. In any event, whether laboratory work is or is not required, the enquiries come to us from a very wide variety of sources. It may be the technical department of a Government of the Empire—Home or Overseas—it may be a farmer or planter of the Overseas Empire, or a mining or timber concessionaire who is anxious for help to market his produce; it may be a merchant or manufacturer in this country who has hitherto handled produce of foreign origin and wishes to tap new sources of supply within the Empire; it may be a scientist or consultant who wishes to know if our results coincide with his own. Then again the character of the enquiries varies within a very wide range. Sometimes

it is a request for identification ; or we may be asked to what uses certain products are put, or for advice as to new uses, advice as to the best kind of machinery for processing, or the best method of packing ; or again for advice as to new sources of supply within the Empire. I hope I have said enough to show how widely different are the sources and character of the enquiries we receive. I do not wish to overstress the point, although it is important to a proper grasp of the character of our work. Let me just add, by way of illustration, a list of some of the raw materials with the countries concerned, dealt with at the Imperial Institute during the past month : Cassava products from St. Lucia ; Vanilla from Grenada ; Preserved Ginger from Jamaica ; Citrus and Pineapple Juices from Nigeria ; Grape-fruit juice from the Gold Coast ; Cashew nuts from Ceylon ; Drug cultivation from Kenya ; Cinchona from British Honduras ; Tung nuts from the Union of South Africa ; Tobacco extract from Southern Rhodesia ; Mangrove wood for paper-making from Tanganyika ; Beeswax and Eucalyptus oil (the latter for ore flotation) from Northern Rhodesia ; Radium minerals from Canada ; Iceland Spar from the Union of South Africa ; Titanium white pigment and Clay for aluminous cement from Ceylon ; Diatomite and Asbestos rock from New Zealand ; a rare mineral from the Gold Coast ; Electromagnetic separation of minerals from the Federated Malay States ; Building stones from Nigeria ; Chromite from Sierra Leone ; Vermiculite from Tanganyika ; Bituminous material from Palestine.

How do we get the information to answer these widely varying questions relating to widely different products ? First and foremost from the accumulated experience of nearly fifty years of such work at the Institute. I think it can safely be said that no other body doing work of this nature can claim such a long record. The next important thing is personnel. We have still on our staff highly trained scientific officers who have been engaged in these tasks for thirty or thirty-five years. Such experience is obviously of inestimable value. Our staff comprises University graduates either with training in one of the fundamental sciences concerned with economic products such as chemistry and botany or mineralogy or with commercial or industrial experience.

In carrying out these investigations we are fortunate in having the help of two Advisory Councils, one on Plant and Animal Products with Sir Frank Stockdale, K.C.M.G. as its Chairman, and one on Mineral Resources under Sir William Larke, K.B.E. The two Councils control the activities of fifteen Consultative Committees dealing with the following major groups of raw materials : Timbers, Vegetable Fibres, Oils and Oilseeds (with a Sub-committee on Tung Oil), Essential Oils, Gums and Resins, Tanning Materials, Hides and Skins, and Insecticide Materials of Vegetable Origin ; and on the minerals side—Precious Metals, Base Metals, Coal and Petroleum, Iron and Ferro-Alloys, Chemical Industries, Miscellaneous Minerals, and Mining Law. On these Councils and Committees the United Kingdom, Dominion, Indian and Colonial Governments are represented, as well as commercial and industrial interests and scientific circles. Thus business men, scientists and administrators meet in our Conference rooms and discuss with us the various technical problems which reach us from all over the Empire ; they also assist

us from time to time with information and material required to enable us to compile and publish our technical monographs and our quarterly *Bulletin*. Technical Officers of Overseas Governments are also invited to attend our Committees when their own problems are under discussion. This is team work of a high order and, without the help of these teams, we should find it difficult or impossible to meet from our own technical experience and skill all the demands made upon us. I should add that, in all our scientific and technical work, we co-operate closely with the High Commissioners and with the Colonial Office and, on the marketing side, with the Colonial Empire Marketing Board.

I now turn to describe the work of our Special Library. May I digress here for a moment to make some general observations on the modern tendencies to which we are committed in building up and maintaining a specialist library of the character necessary to serve the objects we have before us ?

Before the war, it was fairly easy to maintain a library such as ours. The kind of technical works which we had to acquire were not nearly so numerous as they are now ; and, above all, the number of technical journals (as distinct from text-books and other books) was much less—more books and less journals. Nowadays the balance has shifted. We are forced to rely more on journals and less on books. The fact is that as Science advances it is bound to become more and more departmentalised, for only by means of increasing specialisation can the intelligence of man grapple adequately with the scientific problems which his own intelligence has raised. Specialisation evokes the problems and only specialisation can find the answers.

The result is that whereas, before, our scientific staff had to read widely amongst scientific books of reference, nowadays they have not only to read such books but also to keep abreast with the latest articles in technical journals ; not only journals in English but in foreign languages as well. The method employed is to circulate the journals amongst the staff, each member concentrating on those which bear on his special subjects, and marking the articles which are likely to be of more or less permanent interest. After the journals have been marked they pass to our indexers who have to be fully qualified both technically and linguistically for their work. They enter the references in the card-index and also, from their own technical knowledge, and from the monthly abstracts of current work, enter up any other articles, not marked by the laboratory or intelligence staff, which are likely to be useful. Our card index, which for the convenience of the staff is arranged under subject headings, by commodities, was begun some forty years ago, and the mass of information which can thus be made available at short notice is amazing. The *Bulletin*, which contains articles and notes summarising the results of investigations in our laboratories or of trade enquiries which we have dealt with, as well as technical reports of Empire or foreign sources, has for thirty-six years served as an invaluable means of disseminating information about commercial products of the Empire ; the extensive bibliographies which it provides are of great value. In addition the technical monographs compiled at the Institute provide detailed, up-to-date information of the classes of products which form the basis of our work. Our mineral monographs, over fifty in number, are revised and more usually completely re-written from time to time as required. Each

volume of this series deals with a particular mineral or with the ores of a particular metal or with a group of minerals of similar application, such as gemstones or abrasives. On the plant and animal products side, we have recently published a monograph on the preparation of hides and skins of the Empire and we have almost ready for publication a monograph on insecticide materials of vegetable origin.

By this means we maintain an Information Bureau very comprehensive in character, as indeed it must be to enable us to advise on the wide range of economic products with which we are called upon to deal.

As an indication of the scope of our Special Library and Information Bureau, let me quote the following figures : The total number of books in our Library is 75,250 volumes. We acquired last year, by purchase or gift, of books and other non-periodical publications 4,170 volumes. We receive each year some 900 periodicals comprising altogether some 26,000 separate issues. Of the 900 periodicals, the number of dailies and weeklies is 150, of which nearly one half are United Kingdom in origin, nearly one third Overseas Empire, and nearly one quarter Foreign. Of the 600 monthlies and quarterlies, nearly one third are United Kingdom, nearly one third come from the Overseas Empire, and over one third are Foreign. Finally we receive a number of miscellaneous periodical publications, e.g. all the annual reports of the Dominion and Colonial Governments, and their Gazettes, as well as many market reports, both British and Foreign.

Statistics play an important part in our work, but these need expert interpretation if one is not to be led astray by them. We have a special section for this work, which ensures that all doubtful statistics are closely scrutinized before being accepted, for there is nothing more misleading than undigested statistics. Not only do we collect and collate from the annual returns received from official sources but we also secure many interim statements which are of considerable service to the Institute and its inquirers particularly as the printed annual statements do not reach us until many months after the close of the year. Our most important piece of statistical work is the production of our Annual Statistical Summary of the Mineral Industry of the British Empire and Foreign Countries. This annual volume of about 450 pages gives the production, imports and exports of most minerals and metals throughout the world, and has, I think I may claim, an international reputation.

The Laboratories and Intelligence Sections of the Institute work in close co-operation in an endeavour to supply inquirers with the fullest and most useful information. After a sample has been examined in the Laboratories, the results are very often discussed with the Intelligence Staff and from this collaboration it is frequently possible not only to give an inquirer a definite opinion regarding the quality or value of a product, but also to suggest means of improving its quality and the best means of finding an outlet for it. If a commercial valuation of a material is necessary, the Intelligence Staff from their knowledge of market requirements are able to suggest the most suitable commercial firms to whom samples should be submitted for opinion. In this way the potential producer is given the greatest possible assistance.

In conclusion, I venture to say a few words about our educational work at the Imperial Institute. Here we leave altogether the domain

of the Special Library, but not altogether that of the Information Bureau. Perhaps the best description of this side of our work is that of a Visual Instruction Centre of the Empire, for here we combine all the latest technique in visual instruction. Our Exhibition Galleries, our Cinema and Empire Film Library, our Lantern-slides, Lectures, illustrated Post-cards and School Specimens, all tend to secure the one object, namely co-operation with school-teachers in disseminating a more intimate knowledge of the geography, arts and industries of the Empire. Let me give a very brief account of each of these activities.

The Exhibition Galleries are four in number—East, West, South and North—in all between one quarter and half a mile long. They are divided into Empire Courts, each country of the Overseas Empire being represented in its own Court; and they are so arranged that as you walk through the various Courts you follow the natural geographical sequence of the Dominions and Colonies. Canada occupies the whole of the West Gallery. Thence by Newfoundland and the West Indies you enter the South Gallery and pass by the Falkland Islands, New Zealand, Fiji and the other Pacific islands to Australia, Borneo, Sarawak, Hong Kong and Malaya; and so to the East Gallery comprising India, and the major Indian States, Burma, Ceylon and Aden. Thence to the North Gallery for Mauritius and the Seychelles, Somaliland, the Sudan, East, South and West Africa and thus by Palestine, Transjordan and the Mediterranean Colonies, back again to Canada in the West Gallery. Each Court shows by means of relief maps, coloured transparencies and other pictures, dioramas, panoramas, models and specimens of animal, vegetable and mineral products, arts and crafts, charts, graphs and diagrams and other exhibits too numerous to specify, the life and scenery, the arts and industries of the country represented. In fact, we try to arrange the exhibits in such a way that each country tells its own story artistically and vividly, in its own Court.

The descriptive labels are printed in brief, simple language which both the child and the man in the street can easily read and understand. They are headed, where possible, by catchy captions to arouse the interest of the unwary or unsophisticated visitor and to concentrate his attention on the exhibit described. The facts and figures, in so far as they can be included in a short label, are culled from authentic sources, usually from blue books and other official publications received in our Library and statistical department; and where possible the figures are shown in charts or diagrams.

It is, however, a well-known fact that things read make a less vivid impression on the mind than things seen, and for this reason we have adopted the diorama as a focal point to arrest attention and to create an interest in the associated story exhibits. Our aim has been to instal at least one diorama with its associated story exhibit in each Court; this objective has been almost attained, and we now have more than 100 dioramas on view in our Galleries.

The subjects selected for dioramas are either a prominent natural feature of a country, a port or harbour or, more usually, a typical industry. To mention a few examples: dioramas are used in India to show Mount Everest, Cotton, Jute, Tobacco and Tea; in Burma to show Rice and Teak; in Ceylon, Rubber, Tea and Coconut products; in Zanzibar, Cloves; in Rhodesia, the Victoria Falls, Copper-mining

and Cattle-ranching ; in South Africa, Cape Town with Table Mountain, Gold and Diamond mines, Sheep on the Karroo, and Fruit and Wattle plantations ; in Malta, the Grand Harbour ; in Canada, Quebec, Wheat harvesting, Salmon fishing, Nickel mining, and Lumbering ; in the West Indies, Limes, Bananas and Cocoa ; in New Zealand, the Hot Lakes, the Southern Alps, Sheep-shearing and Dairying ; and in Australia, Sydney Harbour and the Yarding of Sheep.

These dioramas are constructed in the Imperial Institute Studios, and every care is taken to secure accuracy of detail by providing the artist with information and numerous photographs to work from, and by enlisting the co-operation of overseas officials and others with intimate local knowledge of the subject or scene portrayed. A diorama presents to the eye of the visitor a vivid picture that becomes fixed in his memory and he is frequently stimulated thereby to investigate the exhibits arranged in association with the diorama and is led on to read the descriptive labels and often to make verbal enquiries of our Curators, Guide Lecturers, and Exhibition Officers.

So far as the development of natural resources is concerned, we are not content with merely showing specimens of ores or timber, oilseeds, gums or fibres. We try as far as possible to tell the whole story of the industry from the raw materials to the goods manufactured from them, thus linking geography with agriculture or forests or mines and again linking the Overseas Empire producer with the manufacturer whether he be a local manufacturer or of the United Kingdom. The child's imagination is caught by some object in simple domestic use such as a brush or a candle, cosmetics or silk stockings or soap. Its interest is aroused and it is encouraged to ask those essential questions which leap to the childish mind and which are at the base of all progress in education: "What is this?" "Why is it here?" "What is it made of?" "How was it made?" These are the questions which, as I say, we try first to stimulate and then to answer.

A Central Stand is maintained in a prominent position in the Galleries where visitors on making verbal enquiries of the Officer-in-Charge are put in touch with the appropriate technical departments of the Institute or with the specialist officers dealing with them.

One of the most important developments in our information services at the Imperial Institute during the past few years has been the rapid advance in the use of the film as a means of supplying data concerning the life and industries of the Empire. I am glad to see that such an authority as Mr. Thomas Baird, with whom we have been working in close co-operation in this field, is to read a paper to the Conference on the use of the film in technical instruction, as I feel sure that with the increasing number of 16mm. cinematograph projectors becoming available to schools and societies of all kinds in this country, many technical libraries and information bureaux will find it worth their while seriously to consider the possibility of using the cinematograph film and other visual aids to instruction as a means of disseminating information of interest to their members.

The Imperial Institute Cinema and the Empire Film Library may be dealt with together. Our Cinema Hall was built for us in 1926 by the Empire Marketing Board, of happy memory: it has room to seat nearly 400 persons. Two years ago we installed "sound" projectors and the experiment has been successful. The films are presented to

us by authorities from all over the Empire, by Ministries and Departments of the United Kingdom Government, by local authorities, public utility and commercial and industrial companies, and by Governments, companies and individuals of the Overseas Empire.

Our library of 1,500 Empire films has thus been built up, after making due provision for wear and tear, from a nucleus of some 750 which we inherited from the Empire Marketing Board by courtesy of the Postmaster-General to whom they first passed on the demise of the Board. These films are not only shown in our Cinema, but are also circulated on loan, free of charge save to recover costs of transport, to schools and societies throughout the United Kingdom. Similarly we circulate films of the G.P.O. Library, as agents for the Postmaster-General, and colonial films as agents for the Colonial Empire Marketing Board. During 1937 and again in 1938 we received grants from the Imperial Relations Trust for the purchase of new films for the Empire Film Library, and for the replacement of worn material. The total number of issues made during the first six months of 1938 from the G.P.O. and Empire Film Libraries was less than 15,000; during the same six months of 1939 the number of issues increased to over 22,000, representing audiences which ran into many millions, chiefly of school-children.

Our system of lectures can be briefly described. We have two Guide Lecturers on our staff. They have first-hand experience of the Overseas Empire and are thus well qualified to explain the exhibits in our Galleries to our school-party visitors. Also, during the autumn and winter months, we are fortunate in securing by co-operation with the Institute of Education lecturers from the Dominions and Colonies who may happen to be in England on holiday or on study to come and give us lectures in our Cinema Hall, usually accompanied by lantern slides or films. If the old proverb is correct, that "Seeing is believing," then surely "hearing" in combination with "seeing" renders conviction doubly assured.

The Victoria League bequeathed to us quite recently their well-known collection of some ten thousand lantern-slides for circulation in this country; and we are at present discussing with the Royal Empire Society the conditions on which they would be prepared to entrust us with the handling of their slides and their circulation to schools. With the co-operation of High Commissioners, of London Agents for the Colonial Governments, and of other authorities we hope to build up this valuable nucleus of some 10,000 slides into a most useful and informative collection; of private donors I mention particularly Lord Bledisloe, who has given us much help from his truly remarkable collection of New Zealand and Rhodesian photographs.

The Institute has already established itself as an authority on visual education on the Empire by means of its Exhibition Galleries, Cinema and Film Library, and the transfer of the slides will enable the whole work in this field to be centralised. I should, however, issue a warning that, although the old-fashioned magic lantern operating glass slides has been in existence for many years, still the cost of the slides and the risk of breakage in transport has restricted the development of libraries circulating slides. Considerable attention is now being given to the possibilities of a small projector which operates strips of non-inflammable film or small separate slides containing sections of cinema

film ($1 \times 1\frac{1}{2}$ inches). These projectors are quite cheap and a roll of strips can be supplied at approximately the cost of the carriage charges on the same number of glass slides. The film strip is, of course, unsuitable where the film cannot easily be replaced in the event of damage, e.g. colour film, or where variations in the sets of pictures to be displayed are required. In such cases the film slide is employed, and it has the advantage over the normal $3\frac{1}{4}$ -inch slide in that, even if the glass does break, the film usually escapes damage.

Our series of Empire Postcards in packets of six or more with lecture-notes and maps included, are in great demand by school-teachers. Each series tells the story of some major industry of the Empire, such as Tea, Coffee, Rubber, Rice, and so on. Our School Specimens fill a long-felt need of some centre where school-teachers can obtain, at the cost of packing and postage, specimens of economic products of the Overseas Empire not easily available in the shops. Both the postcards and the school specimens are used to illustrate the school lecture, often with the help of an epidiastroscope.

And now I have finished this account of the Imperial Institute in its three-fold capacity as Information Bureau, Special Library and Visual Instruction Centre. May I conclude by expressing the hope that, on your return to London, members of ASLIB will do us the honour of coming to see us at work and will give me an opportunity of welcoming you personally and of explaining some of our more interesting problems and how we try to grapple with them?

The Accessibility of British University Thesis Literature.

By LUXMOORE NEWCOMBE.

1. THE NEED FOR MORE INFORMATION ABOUT BRITISH UNIVERSITY THESES.

From their very nature the theses accepted by universities must always be of the first importance to many persons other than those who write them. Such documents contain each year a large aggregate of original material—some perhaps of little real value, but in the main, important, and much of it of the utmost importance. Probably most of the material in the last group is published in book form or in periodicals. It may be, therefore, that no serious problem exists in the case of outstanding theses. These, however, form a comparatively small percentage of the total, and, ignoring the many theses which may be of little value once they have served their author's purpose, there remains a great deal of original material which should be made available to other scholars, scientists, technologists, medical men, and, indeed, the world at large.

It is such theses as those just referred to that present a very real problem, because, not being published, and often not even appearing in any published list, the information they contain remains buried in a single typed copy in the archives of a university or in its library.

It is highly desirable that those concerned should have a better knowledge of this large collection of original material. There are two main reasons for this, the first being that the information contained in the theses should be readily available to those working on the same subjects, and the second that a knowledge of the ground covered is of considerable importance to those responsible for the choice of a subject to be allotted to a candidate for a higher degree. It is not within the province of this paper to enlarge upon either of these two points, the importance of which is, after all, well known to all concerned. The object is, rather, to show to what extent theses are now available for consultation and to what extent it may be possible to make it easier for a more general knowledge of the subjects dealt with, and the original matter included, to be more widely known among those who would profit by such knowledge. This necessarily includes a consideration of the existing guides to the subjects dealt with and the possibility of being able to consult a thesis once its existence has been discovered.

2. GUIDES TO BRITISH THESES.

Unfortunately we in the British Isles have no great guides to the material contained in our published and unpublished thesis literature, such as those available in Germany, France, and the United States. It would not be appropriate to trespass on the ground of my colleagues in this symposium by giving detailed information about the excellent publications issued in these three countries, but a brief reference is

necessary in order that we may understand better the inadequacy of the guides to thesis literature in the British Isles.

Germany has the *Jahresverzeichnis der deutschen Hochschulschriften*, the first volume of which covers the year 1885-6. The last published volume, covering the year 1937, has a list of theses occupying no less than 688 pages. Another 182 pages are devoted to an author index and a subject index. The theses are entered under the name of the university, sub-divided by faculties. French theses are recorded in the *Catalogue des thèses et écrits académiques*, issued annually by the Ministère de l'Instruction Publique. The first volume covers the year 1884-5. The entries are arranged under eight subject headings, sub-divided by universities. An average volume contains something like 2,150 entries, each entry giving author's name, full title, and number of pages. For the first twenty-five years an author index and a subject index was issued every five years. In some later volumes an author index only was issued.

In the United States there is the *List of American doctoral dissertations* issued each year since 1912 by the Library of Congress. This list contains particulars of all *printed* theses* accepted by universities in the United States of America, provided that a copy has been received by the Library of Congress. The List is, therefore, not necessarily complete, even for printed theses. The latest published volume, that covering the year 1936, contains details of 1,291 theses, arranged under the name of the author, together with a classified list "arranged under broad classes" and a subject index. From 1933-4 onwards the Library of Congress List has been supplemented by *Doctoral dissertations accepted by American universities*; important because it is a list of the *unpublished* American theses, arranged under subject headings with an author index. The latest volume (1937-8) contains entries for 2,768 theses.

The following notes include all guides—so far as the author has been able to trace them—to the theses accepted by British universities.

1. *Aberdeen*. Printed lists of theses were published from 1932 to 1937, but have since been discontinued.

2. *Cambridge*. Issues an annual summary of theses accepted for the degree of Ph.D. Copies may be purchased.

3. *Dublin, National University of Ireland*. A list of theses submitted for doctoral degrees is given in the University Calendar.

4. *Dublin, Trinity College*. A list of theses approved for doctoral degrees is given in the *Dublin University Calendar*.

5. *Durham*. *Abstracts of theses for doctorates presented by candidates who have received the degrees* has been published each year since 1931-2. The latest number (1937-8) contains abstracts of 14 theses, each occupying an average of one page.

6. *Edinburgh*. Prior to 1930-1 the only record is the lists printed in the University Calendar. From 1930-1 onwards the university has published annually a *List of theses accepted for doctorates*. The list for 1937-8 contains entries for 92 theses, arranged under broad subject headings. Copies of these lists may not be purchased, but they are presented to all British universities and to selected foreign universities.

7. *Glasgow*. No separate lists are published, but the Graduation

* Actually later volumes contain also a few mimeographed and even typewritten theses.

Lists published in the University Calendar give, after the name of each graduand for a doctorate, the title of his thesis.

8. *Leeds*. Abstracts of theses accepted for higher degrees (Masters and Doctors), are published in the annual *Publications and abstracts of theses by members of the University*, the first number of which covers the year 1927-8. The 1937-8 number contains abstracts of 29 theses and the titles of 12 others. The publication is not offered for sale, but copies may be obtained free of charge.

9. *London*. An annual list of the titles of theses is published each year in *Subjects of dissertations and theses, and published works presented by successful candidates at examinations for higher [Masters and Doctors] degrees*. These are arranged under broad subject headings. The first number covers the year 1937. Lists of theses are also included in the University Calendar from the years 1930-1 onwards. The annual list will be issued as a cumulative catalogue every five years.

In connection with London there is also *A list of English, Scandinavian, and German theses in the University of London*, issued in 1939 as *London Mediaeval Studies : Monograph No. 2*. This list includes the titles of all theses (403 in all) presented successfully for the degrees of Master of Arts and Doctor of Philosophy in the subjects mentioned between the years 1906 and 1938.

10. *Oxford*. Each term the *Oxford University Gazette* publishes a list of candidates for the degrees of Bachelor of Letters, Bachelor of Science, and Doctor of Philosophy, with the subject and title of the thesis in each case. The entries are arranged under broad groups, sub-divided by Colleges : an arrangement which makes it necessary for search to be made through nearly the whole list to find what is being done in any particular subject. As an example of the field covered by these lists it may be mentioned that the number of the *Gazette* for the 13th January, 1939, contains entries for no less than 414 subjects for theses, arranged under the four headings, Degree of Bachelor of Letters, Degree of Bachelor of Science, Part II Chemistry, and Doctor of Philosophy. These lists do not necessarily represent completed theses : some may never be presented and others may not be accepted.

The University of Oxford also publishes each year *Abstracts of dissertations for the degree of Doctor of Philosophy*. The first volume covered the year 1928. The volume for 1938 contains 38 abstracts occupying 261 pages, and at the end (45 pages) a list of successful candidates for the degrees of B.Litt and B.Sc., with the titles of their theses.

11. *St. Andrews*. *A List of theses accepted for degree of doctor* is published every two years. The list for 1936-7 and 1937-8 contains 21 entries. The list is not for sale, but copies are distributed to other British universities through the Universities Bureau of the British Empire.

12. *Sheffield*. A pamphlet entitled *Summaries of theses submitted by successful candidates for higher [Masters and Doctors] degrees* is published annually. The number for 1937-8 contains summaries of 19 theses, the average length of each summary being about three-quarters of a page. These Summaries are also printed in the Annual Report of the University. The publication is not for sale, but a limited number is available for free distribution.

General. A document of particular value in its own field is the *Theses*

Supplement of the Bulletin of the Institute of Historical Research, first issued in 1933. The Supplement contains particulars of historical theses, and theses in geography which have some historical interest, completed or in progress in the universities or university colleges of the United Kingdom. The Supplements are published in June each year and are sold separately at one shilling.

Reference must be made also to the attempt by ASLIB to compile a catalogue of British theses. The catalogue—so far as it goes—is arranged under the Universal Decimal Classification, each card showing where a copy of the theses may be consulted. Although work on this catalogue was begun several years ago the compilation had to be discontinued after a short period and the index contains only about 500 entries. This disappointing total is not due to lack of interest on the part of ASLIB, but it is obvious that with the staff available in the office such a project was foredoomed to failure.

3. THE NUMBER OF THESES PUBLISHED.

It has been found impossible to obtain any detailed, or even reliable, information as to the approximate percentage of theses which are published for sale through the ordinary channels, but such information as is available suggests that the figure would be small, probably considerably under 10 per cent, and many—probably most—of these are published as articles in periodicals and not as separate books. In the case of one English university, however, the percentage appears to reach the exceptionally high figure of twenty-five, mainly articles in scientific periodicals. In Edinburgh all D.Litt. theses must be published.

4. LIST OF DEGREES FOR WHICH A THESIS IS ACCEPTED.

The following is a list of all the degrees for which a thesis is accepted. In the case of many of the degrees not included in the list, work already published (often a series of articles in periodicals) has to be submitted in place of a thesis.

- | | |
|---|--|
| 1. Aberdeen | D.Litt., D.Sc., M.D., Ch.M., Ph.D. |
| 2. Belfast | M.A., M.Sc., M.Agr., M.Ch., M.D.S., M.A.O.,
D.Lit., LL.D., D.Sc., M.D., D.D., Ph.D. |
| 3. Birmingham | B.A. (Hons. History), B.Mus., M.A., M.Sc.,
M.Com., Ch.M., M.D.S., M.Mus., D.Litt., D.Sc.,
M.D., D.Mus., Ph.D. |
| 4. Bristol | M.A., LL.M., M.Sc., Ch.M., M.D.S., D.Litt.,
LL.D., D.Sc., M.D., Ph.D. |
| 5. Cambridge | B.A., LL.B., M.B. and B.Ch., B.D., Mus.B.,
M.A., M.Litt., LL.M., M.Sc., M.Ch., Mus.M.,
Litt.D., LL.D., Sc.D., M.D., D.D., Mus.D.,
Ph.D. |
| 6. Dublin, National
University of
Ireland | M.A., M.Arch., M.Econ.Sc., M.Sc., M.E.,
M.Comm., M.Agr.Sc., M.Ch., M.D.S., M.A.O.,
M.D., Ph.D. |
| 7. Dublin, Trinity
College | B.Litt., B.D., M.Sc., M.Comm., LL.D., M.D.,
D.D., Ph.D. |
| 8. Durham | B.D., M.A., M.Litt., M.Ed., LL.M., M.Sc.,
M.Com., M.D.S., D.Litt., D.C.L., D.Sc., M.D.,
D.Ch., D.Hy., D.D., Ph.D. |

9. Edinburgh	Ch.M., D.Litt., D.Sc., M.D., Mus.Doc., Ph.D.
10. Glasgow	Ch.M., D.Litt., D.Sc., M.D., Ph.D.
11. Leeds	M.A., M.Ed., LL.M., M.Sc., M.Com., Ch.M., Litt. D., LL.D., D.Sc., M.D., D.D., Ph.D.
12. Liverpool	B.A. (Hons. in special subjects), B.Com. (Hons.), M.A., LL.M., M.Sc., M.Eng., M.Com., M.V.Sc., Litt.D., D.Eng., M.D., Ph.D.
13. London	M.A., M.Sc., M.Com., M.S., D.Lit., LL.D. (optional), D.Sc., M.D., D.D. (optional), D.Mus., Ph.D.
14. Manchester	M.A., M.Ed., LL.M., M.Sc., Ch.M., M.D.S., M.D., D.D.S., Mus.D., Ph.D.
15. Oxford	B.Litt., B.Sc., B.D., B.Mus. (musical exercise), D.M., D.D., D.Mus. (musical exercise), D.Phil.
16. Reading	M.A., M.Sc., D.Litt., D.Sc., Ph.D.
17. St. Andrews	Ch.M., M.D.S., D.Litt., D.Sc., M.D., Ph.D.
18. Sheffield	M.A., LL.M., M.Sc., M.Eng., M.Met., Ch.M., M.D.S., M.D., Ph.D.
19. Wales	M.A., LL.M., M.Sc., M.Ch., M.D., Ph.D.

5. ACCESSIBILITY OF THESES FOR CONSULTATION OR LOAN.

The following notes show how far theses are preserved in the 19 university libraries and to what extent they are available for consultation or loan. An analysis of the information shows that :

- 10 libraries have one copy of all theses.
- 4 libraries have one copy of all theses and a second copy of some.
- 4 libraries have one copy of some of the theses only.
- 1 library has no copy of any theses.
- 18 libraries will allow theses to be consulted in their library.
- 13 libraries will lend copies of theses to other British university libraries.
- 10 libraries will lend copies to British public and special libraries.
- 6 libraries will lend copies to foreign libraries, but in some cases only in exceptional circumstances, and in one case only if a duplicate copy is available.
- 3 libraries will lend copies to any other British or foreign library if a second copy is available.

1. *Aberdeen*. One or two copies of each thesis are filed in the university library, where they may be consulted. They may be lent for use in any other British library, but they may be lent to a foreign library only in special circumstances.

2. *Belfast*. One copy (in rare cases two copies) of each thesis is filed in the university library. A copy of each thesis submitted but rejected since 1937 is also filed. All theses may be consulted in the library, except those withheld for the first three years at the request of the author. They may only be lent to another British or foreign library if there is a second copy.

3. *Birmingham*. One copy of each thesis is filed in the university library. For earlier years the set is incomplete as theses were often retained by the professors. Theses may be consulted by authorised persons. They might be lent for use in another British library, but would not be lent to a foreign library.

4. *Bristol*. One copy (sometimes two or three copies) of each thesis is filed in the university library, where, with few exceptions, they may be consulted, on the understanding that the contents may not be used for publication without the permission of the author. When more than one copy is available, theses may be lent to British or foreign libraries.

5. *Cambridge*. One copy of each thesis submitted for the degree of Doctor of Philosophy or Doctor of Medicine is filed in the university library. They may only be consulted by the author or by a person having the author's permission, and they cannot be lent to any other library.

6. *Dublin, National University of Ireland*. One copy of each thesis is filed in the university library, where it may be consulted. They may not be lent to any other library.

7. *Dublin, Trinity College*. No copy of any thesis is filed in the College library, but those submitted for the degrees of Bachelor of Literature and Doctor of Philosophy are filed in the Registrar's Office. They may not be consulted or lent.

8. *Durham*. One copy of each thesis (except those submitted for B.D., M.A., M.Sc., and LL.M.) is filed in the university library at Durham or in the library of King's College, Newcastle-upon-Tyne. They may be consulted in the library, but cannot be lent to any other library.

9. *Edinburgh*. One copy of each thesis (except Divinity theses which are in the library of New College) is filed in the university library. They may be consulted in the library, but may be lent to another library only in exceptional circumstances.

10. *Glasgow*. One copy of each thesis is filed in the university library, where it may be consulted by responsible persons after reference has been made to the librarian. They may be lent to other British university libraries and to special libraries of university standing (but not to public or other libraries or to foreign libraries) after a lapse of one year from the date of their receipt by the university library. They will be lent only for consultation by persons whose names and academic standing have been communicated to the librarian. In each case the author is informed of the loan.

11. *Leeds*. One copy of each doctoral thesis should be deposited in the university library. Mastership theses may be deposited, but it is only seldom that they are. They may be consulted in the library, but this is subject to the permission of the Head of the Department concerned. This more especially applies to science theses containing confidential information. Many such theses are preserved in the department and not in the library. With the permission of the Head of the Department concerned theses may be lent to British and foreign libraries.

12. *Liverpool*. One copy of each thesis is filed in the university library, where it may be consulted. They may not, however, be consulted without the author's consent until they have been in the library for five years. They cannot be lent to other libraries.

13. *London*. One copy of each thesis is filed in the library. In most cases a second copy also is kept for issue to accredited borrowers. They may be consulted in the library, and they may be lent for use in a British library. When the library possesses a duplicate copy it may be lent to a foreign library.

14. *Manchester*. One copy of each thesis (except those presented for Mus.D.) is filed in the university library, or in one of the departments. They may be consulted in the library, subject to the approval of the Head of the Department concerned. They may also be lent to any British or foreign library with the approval of the Head of the Department.

15. *Oxford*. One copy of each thesis accepted for the degrees of D.Litt., D.Sc., D.M., B.Mus., D.Mus., D.Phil., is filed in the Bodleian Library, where it may be consulted. Unpublished theses and musical exercises are not given to readers except by special permission of the librarian, who requires to know the reason for which it is desired to consult them and the wishes of the authors or composers. In the case of musical exercises the permission of the Professor of Music must also be obtained. Subject to certain conditions theses may be lent to British and foreign libraries.

16. *Reading*. One copy of each doctoral thesis is filed in the university library, where it may be consulted, on condition that the reader gives an undertaking that, should any reference be made by him to matter contained in a thesis, adequate acknowledgment will be made. Theses may be lent to any British library, but not to a foreign library. Applications for M.A. and M.Sc. theses should be made to the Registrar of the University.

17. *St. Andrews*. Theses are filed in the Secretary's office, but they may be consulted in the university library. In special circumstances they may be lent to a British university library, but not to any other British library or to a foreign library.

18. *Sheffield*. One copy of each thesis is filed in the university library, where it may be consulted. Sometimes, with the author's consent, a thesis may be lent to a British university library. Applications for loan to other British libraries would be considered on their merits. Only in exceptional circumstances would they be lent to a foreign library.

19. *Wales*. One copy of each thesis is filed in the university library, where it may be consulted. Each person who consults an unpublished thesis is required to sign a statement that he has inspected it. Theses may be lent to a British university library, but not to any other British library or to a foreign library.

6. CATALOGUES OF THESES IN UNIVERSITY LIBRARIES.

In the absence of any general published catalogues of British theses, the method of making information readily available in the university library catalogues is a matter of particular importance. It is felt, therefore, that it may be worth while to include the following details.

The National University of Ireland, Trinity College, Dublin, and St. Andrew's have no catalogue; in the two latter cases the theses being filed in the Registrar's or Secretary's office. Durham has no catalogue of theses, but a register is kept of musical exercises, arranged in accessions-book order. Oxford has a hand-list of theses and musical exercises, entered in the order in which they are received. In the case of Aberdeen, Cambridge, Glasgow, Leeds, Liverpool, and London, there is an author catalogue only, in some cases incorporated in the general catalogue. Bristol has a hand-list divided according to faculties and arranged chronologically, with an author index.

Prior to 1938, Belfast entered their theses in a ledger in accessions

order, with an author index ; but from 1938 onwards both author and subject entries are incorporated in the general catalogue. Birmingham has an author catalogue as well as an entry according to degree and date. From 1938 onwards there is a subject entry also. Edinburgh has an author catalogue, and, from 1928 onwards, a subject catalogue. Subject entries for earlier years are in preparation. Manchester has an author catalogue only, but a subject catalogue is in preparation. Reading has author and subject entries incorporated in the general catalogue, with a chronological list filed with the theses. Sheffield also has both author and subject entries in the general catalogue. There is also a hand-list of theses entered as they are received. Wales has both author and subject entries.

It will be seen from the above analysis that only six libraries (one other has a subject catalogue in preparation) have both an author and a subject entry, seven have an author entry only, two have entries arranged under the date on which they are received in the library, and three have no catalogues.

7. COLLECTIONS OF FOREIGN THESES IN BRITISH UNIVERSITY LIBRARIES.

The following notes are based on information kindly supplied by the librarians of all the university libraries and the principal university colleges in the British Isles ; a total of 42 libraries. The information given does not deal with British theses, but it would seem desirable to complete the subject of this paper by showing in which British university libraries any considerable number of foreign theses may be seen. Most of the theses referred to are presented by the university concerned or are received in exchange for some publication issued by the British university. Only in exceptional cases are they bought. Many foreign theses may also be seen in a few other libraries, such as the British Museum.

1. *Aberdeen*. Has a considerable number of foreign theses.
2. *Aberystwyth, University College*. Receives about 50 each year from the Columbia Teachers College, New York ; the total now being about 400.
3. *Birmingham*. Receives a good many from America.
4. *Cambridge*. Theses are received more or less regularly from the following universities : Brown University, Providence, Rhode Island ; Bryn Maur ; California ; Chicago (abstracts) ; Columbia, N.Y. ; Dorpat ; Göttingen ; Harvard (Radcliffe Honors Theses) ; Illinois ; Johns Hopkins, Baltimore ; Leiden ; Louvain (abstracts) ; Michigan ; Minnesota ; Munich ; Neuchâtel ; Pennsylvania ; Princeton ; Wales (summaries).
5. *Cardiff, University College*. Has a collection of 60 to 70 German theses on Euripides issued between 1826 and 1910, and 69 theses from the German Seminar at Bonn (mostly on German literary or linguistic subjects, but a few on English).
6. *Dublin, Trinity College*. Has a large number of foreign theses.
7. *Dublin, University College*. Receives theses from Freiburg im Breisgau ; Giessen ; Göttingen ; Jena ; Zürich.
8. *Durham*. Has a small miscellaneous collection of theses, mainly from one or two German universities.
9. *Edinburgh*. Has a number of early theses and a collection of about

21,000 modern theses (from 1872 to date) representing about 66 universities.

10. *Glasgow*. An average total of about 600 theses is received each year from the following universities (the figures in parenthesis show the average number received during each of the past three years): Basel (100); Berlin (42); Brown University, Providence, Rhode Island (20); Copenhagen (42); Debreczen (10); Groningen (33); Hamburg (228); Johns Hopkins, Baltimore (37); Leipzig (5); Michigan (35); Minnesota (40); Virginia (5).

11. *Leeds*. Has many theses, including those from Frankfurt a. M.; Giessen; Göteborg; Greifswald; Halle; Lund; Michigan; Neuchâtel; Pennsylvania; Princeton; Upsala; Utrecht; Yale.

12. *Liverpool*. In addition to other theses in the general stock, there is a collection of about 2,000 German theses which are arranged by subject but are not yet catalogued.

13. *London*. Has a collection of about 10,000 theses, including those from Brown University, Providence, Rhode Island*; Chicago*; Columbia*; Heidelberg; Kiel; Jena; Leiden*; Lund*; Munich; Pennsylvania*; Princeton*; Strasbourg; Utrecht*. Only those marked with an asterisk are received regularly.

14. *London School of Economics*. Has arrangements with a number of foreign universities—including Cologne, Hamburg, Königsberg, Leiden, and Zürich—for the receipt of theses which fall within the scope of the work of the School. It also has many other foreign theses.

15. *London, University College*. Has a large number of miscellaneous theses, as well as those received fairly regularly from Groningen, Hamburg, Jena, and Minnesota. A useful collection—although outside the scope of this paper—is the bibliographies prepared by students of the School of Librarianship for the Diploma in Librarianship.

16. *Newcastle-upon-Tyne, King's College*. Has about 200 theses from French universities, mostly Paris, and about 500 German theses on Classical subjects, chiefly dating from near the end of the nineteenth century. The College has also a number of recent theses from Lund.

17. *Oxford*. Between 1885 and 1938 about 263,000 theses were received. The present annual intake is between 8,000 and 9,000, received from universities in the following countries: 1 university in Belgium, 1 in Canada, 1 in Denmark, 1 in Estonia, 2 in Finland, 17 in France, 18 in Germany, 4 in Holland, 1 in South America, 3 in Sweden, 5 in Switzerland, and 11 in the United States.

18. *St. Andrews*. Has a collection of more than 20,000 theses from about 20 universities. The annual accessions amount to about 1,700.

The remaining 24 university and college libraries have no large collections of theses, though naturally each library has a certain number included in its general stock.

8. MATTERS FOR CONSIDERATION.

Having completed our survey of the position as it is at present, we may now consider whether everything is satisfactory, or whether it is desirable that ASLIB—if ASLIB is the right body to act—should try to initiate some improvements whereby easier access could be obtained to British, and if necessary foreign, theses.

It would appear that there are four chief points which might usefully be considered. These are:

(1) Is it feasible to compile and publish a national guide to all British theses on the lines of the guides issued in Germany, France, and the United States? If the cost of printing such a guide should prove to be prohibitive—as, allowing for the cost of compilation, it certainly would be unless the sales were considerably higher than one could reasonably anticipate—would it be desirable to compile a catalogue on cards? Such a catalogue might be housed at some suitable centre, from which information could be obtained through the post.

The catalogue would have to be a subject one, as the information asked for would almost invariably be for theses on a given subject. An author index would be needed, and in the case of unpublished theses a location index also would be necessary. The main cost would be the salary of a person of sufficient academic standing to be able—with the assistance of university authorities—to compile an adequate subject catalogue and to deal with the enquiries received. It is assumed that the catalogue and the staff could be housed free of charge; otherwise there would be an additional charge for rent and so on.

Would such a catalogue serve a useful purpose? Who would make use of it, and what kind of information would it be expected to supply?

(2) Should each university be encouraged to file in its library two copies of each *unpublished* theses accepted for *any* degree, it being understood that the second copy would be available for loan to any other library? At present no library has a second copy of all theses, though four have a duplicate of some.

(3) Should each university library be encouraged to compile a subject catalogue of all unpublished theses of its university? At present six libraries have a subject catalogue, while a seventh has one in preparation.

(4) Would it be desirable to collect in some one library—possibly the National Central Library—a copy of every published foreign thesis, which would be available for loan. Before taking action to implement this suggestion it would be necessary to consider (*a*) the cost of dealing with this mass of material, and (*b*) whether the foreign theses already received by British university libraries which are willing to lend cover the ground sufficiently well.

No action on any of the matters referred to, or on any other matters concerning university theses, should be taken without first obtaining the views and advice of all British university authorities and librarians. It may be that, after all, everything is sufficiently satisfactory as it is.

9. ACKNOWLEDGMENTS.

In conclusion, the author expresses his thanks to those university librarians and registrars who have so kindly supplied the information on which this paper is based. It is hoped that the aggregate information given in the paper may at times be of some assistance to those without whose help it could never have been written.

The Accessibility of Thesis Literature of the United States

By WATSON DAVIS,

President, American Documentation Institute.

One of the most prolific ways of telling the intellectual world about research results is through the doctoral dissertation, which, due to the exigencies of degree-getting, must be produced on schedule whether or not the research is finished, polished or important.

In the U.S.A. over 2,500 doctoral dissertations, submitted in connection with the awarding of the Ph.D. degree, have been produced each year for the past five scholastic years, covering almost all fields of scholarly and scientific study.

Most of these are not as accessible as the average typical journal article. On the 2,768 dissertations of 1937-8 only 1,618 are required to be printed either in full or in part. And printing does not by any means assure a thesis of accessibility. Often it only means that it is successfully buried in a few more places than it would be if it remained in multiple typescript. Forty-seven institutions of the 92 reporting doctoral dissertations do not require printing in any form. Even the printing of a dissertation is no assurance that it will be available to those who will need to use it at once or in later years, since most of the printed theses are not widely distributed and are seldom widely indexed or noted in bibliographies or abstract journals.

Statistical data cited are taken from the annual compilation *Doctoral Dissertations Accepted by American Universities*, compiled for the Association of Research Libraries, edited by Donald C. Gilchrist, and published by H. W. Wilson Co., New York (\$2), of which the 1937-8 issue was the fifth number. The 1938-9 list will appear in November. (The first four issues can be obtained in a lot order for \$4). This annual continues, but extends to all fields, the annual lists in the field of science issued for 1920-32 by the National Research Council, Washington.

"In practically all instances where the full thesis is not available in printed form, typewritten copies are filed in the library, and are available for loan," stated Dr. Gilchrist's compilation. "Authorization for loan is required in some instances, either from the author, the dean of the graduate school, or from a department head."

Obviously such an arrangement does not promote ease of access. Time-taking exchanges of correspondence are usually necessary, universities are reluctant to have their precious copies leave their custody, authors have gone out into the world and are hard to locate, and deans are likely to have other things much more important to do.

Dissertations made available in this way can hardly be said to have become an effective part of the world's store of knowledge. Yet one of the basic ideas in the award of an advanced degree is that it is a contribution to the world's knowledge. That contribution is not complete or effective unless the knowledge added is distributed or made freely accessible.

There are a few cases in which university or dissertation author considers that the dissertation is private property and should not be made available only at the owner's discretion. But usually the difficulty of access is due purely to mechanical and human difficulties of distribution, such as crowded condition of journals and the fact that dissertations are usually written for degree-getting and not primarily for publication.

Ignoring the cynical charge often made that most dissertations are not worth publishing, how can they be made available to those who need them when they want them, without cluttering up the already crowded library shelves of the world in the process?

Microfilm provides the answer. It is peculiarly adapted to this task. Microfilm can provide auxiliary publication of as much of the written and pictorial record of the world as the world wants, and it can do it at a cost that the world can afford.

"The auxiliary publication service, inaugurated in 1936 by Science Service's Documentation Division (now the American Documentation Institute) makes available material that cannot be fully or promptly published. The essential steps are: 1. Deposit of typescript, tables, illustrations, etc. and assigning of a document number and price for microfilm and photoprint copies. 2. Publication of notice of availability of the document. 3. Ordering of document in microfilm or photoprint form when and if desired. This method is well fitted to making available doctoral dissertations, most of which are not now easily available. . . . It is realized that the application of this method of publication to all doctoral dissertations will be necessarily a gradual growth. . . ." [Science Service Documentation Division, Document 291, Feb. 15th, 1937, see also Doc. 292].

Since this idea was put forth, the service of microfilm to the intellectual world, through ADI and other agencies, has greatly increased. As a tool for the distribution of dissertations, it is already being used.

Upon the American scene, the American Documentation Institute (address: Bibliofilm Service, Care U.S. Department of Agriculture Library, Washington, D.C.) is ready to facilitate the obtaining of American doctoral dissertation in microfilm, through co-operation with the libraries and institutions concerned.

I am happy to announce that the 1938-9 edition of *Doctoral Dissertations Accepted*, through the co-operation of Dr. Gilchrist, will contain a notice to this effect:

Orders for copying in microfilm or photoprints any available dissertation not in print listed, in this and previous editions may be sent to the non-profit Bibliofilm Service, care U.S. Department of Agriculture Library, Washington, D.C.

On receipt of such order ADI's Bibliofilm Service will do just as it does for any other research material wanted, namely, get the order filled somehow, either by one of its four stationary installations, through the micro-photographic service if any of the given university, or if none by borrowing by mail for copying at its laboratory. In the latter case it can make a master negative, so that the item need not be borrowed again for any future request. This clearing system works well and insures that all available resources are employed to get for the scholar the material he needs wherever it is. The cost is usually about a cent a page.

Microfilming apparatus is rapidly becoming an integral part of complete library facilities in leading universities. This will allow them to co-operate in this practical plan for making theses accessible.

From the standpoint of speed of service and accessibility of all theses, it would be desirable to have all doctoral dissertations in each country on deposit at a central location from which they could be supplied in micro-film upon demand with great promptness.

In these days of speedy airmail transportation, in view of the light weight of microfilm, dissertation microfilms could be supplied from London to America (for British theses) and from Washington to Europe (for American theses). However, when and if dissertations are brought together, duplicate microfilm negatives of them might be exchanged between world centers, from which they could be distributed regionally on demand. This would also promote their preservation, for the destruction of the original depository by war, earthquake, or other calamity would not wipe out the intellectual record.

What is said of doctoral dissertations may also be said of all other kinds of documents (articles, photographs, manuscripts, etc.) deposited under the auxiliary publication plan.

One great incidental advantage of auxiliary publication by microfilm is that precious library shelf space is not monopolized by material that is infrequently used.

A conventional method of reading some important, but seldom needed, contribution into the intellectual record is to print an edition of, say a thousand and distribute them to key libraries. Each of these thousand copies takes up a half-inch or so of library space, presumably forever. Each library must spend money (often about 50 cents) to index the accession. Therefore, this reading into the record costs not alone the cost of publishing, but the cost of storing and accessioning in a thousand libraries, a sizable tax. Even then the book or monograph is not really accessible, unless it is properly noticed in the periodical literature and in the abstract journals.

All this direct and indirect cost is saved under the auxiliary publication by microfilm plan. No copies are provided, even in microfilm, unless and until someone actually wishes to use the document. But if a thousand wish it ten days or years after deposit, the requisite copies can be provided. The document is never in print and yet it is never "out of print."

There is every indication that this more modern method of distribution of doctoral dissertation and other material will come into increasing use. There is great hope that it will speed the interchange of hitherto inaccessible information between various nations.

As each country or geographical region sets up its microfilm centers or networks of co-operating microfilm centers, the research worker, who is consumer of our documental record, will be better served. That is the objective of all these efforts just as it is the objective of all library, archival and information efforts.

It should be the endeavour of those in various geographical areas to facilitate the practical operation and service of microfilming. Facilities do exist in world centers that will operate if there are demands made upon them. Even in disturbed times internationally it is important that the channels for intellectual intelligence be kept open so far as possible.

The fact that there is a will among intellectual workers of various nations to keep in contact no matter what happens, lends encouragement to our attempts to gather our intellectual documentary resources into a world brain. One of the earliest discussions of international co-operation using microfilm as a tool occurred at the 1936 Lucerne meeting of the International Union of Chemistry under the impetus of Dr. Jean Gerard of Paris. Subsequent discussion at conferences and in the literature now makes the actual practical utilization of the new microfilm techniques feasible and timely.

Notes on Thesis Literature in France.

By JULIAN CAIN

Director of the Bibliothèque Nationale.

French theses, after having been accepted by one of the eighteen universities (including Algiers and Hanoi), are centralised at the Library of the University of Paris (Sorbonne). Each year the Inspector of University Exchanges sends a complete set to each university library in France and to all foreign libraries participating in the exchange scheme. The Bibliothèque Nationale receives a complete set, in addition to the copies received by legal deposit.

These theses are classified with a view to the compilation of the catalogue of exchanges, which appears in the form of parts of the *Bibliographie de la France* before it is made up into a complete volume.

In the catalogue, the entries for the theses are classified by Faculties, observing the traditional order of precedence; Law, Medicine, Veterinary Medicine and Pharmacy, Science, Letters, Theology. Within the main section the entries are given under the name of the university in alphabetical order, then in alphabetical order under the author's name, which in turn are further sub-divided under the headings of the different diplomas. Since 1930 the catalogue has indicated the press-work in the Bibliothèque Nationale.

A special edition of the catalogue is used for mounting on cards, which are inserted in the different card catalogues.

Register of Technical House Journals.

A suggestion was received some time ago from Mr. E. N. Simons (Messrs. Edgar Allen & Co., Ltd.) that a register of House Journals * might usefully be compiled. The Council of ASLIB therefore appointed a Sub-Committee to consider the question and to prepare material for submission to the Round Table Session at the 1939 Conference.

Enquiries sent to 124 ASLIB members (representing widely varying spheres of interest) have elicited replies from 70 sources. Lists sent in by these members have furnished the names of 418 house journals of British business houses, and, on the suggestion of certain members, contact has been established with American group firms or associations interested in the same subject.

At the outbreak of hostilities the Register contained, in addition to the 418 British journals already mentioned, 39 from our various Colonies, 935 from America, 23 from France, and 50 from Germany. Other European countries (unclassified) produced a list of 17 journals.

The lists have been correlated and the information indexed in ASLIB office. The Secretary is, therefore, now in a position to supply to members particulars of a large number of House Journals containing specialised information of various types. It is hoped to publish, in the near future, further particulars of the Register of House Journals, together with suggestions for making the list available to ASLIB members who may be interested.

B. M. DENT, E. W. PARKER, E. N. SIMONS.

*It should be emphasised that the register is being confined to house journals containing articles of scientific, technical or other specialised interest. Journals having solely social interest, such as staff magazines, are not included in the survey.

Agriculture : An Art or an Industry ?

By C. S. ORWIN, M.A.

Agriculture, whether as an art or as an industry, seems rather remote from the deliberations of this Conference. But in one form or another it has occupied the whole of my working life, and you have common ground with me, at all events, in that all of you depend upon its products.

But what is this business of farming ? Is it an art or an industry ? It is almost as old as man. For long ages it must have been almost his only occupation. Even to-day, some 80 per cent. of the people of the world follow the pursuit of agriculture. The greater number of them, by far, are self-suppliers. Few of those who live by agriculture in the tropical countries are fully occupied. Some of them grow rice, others grow mealies, others again tend flocks and herds. The work of the crop growers is seasonal, that of the herdsmen, while more regular, is largely contemplative. Nowhere do you find the organisation, the hustle, the competition, which we associate in our minds with the conduct of any great industry. And yet it is upon the little surpluses of these people that we are largely dependent for many of our cereals, for the raw materials of the margarine and soap industries, for our cocoa, and for many other products in greater or lesser degree. Is their agriculture an art or an industry ?

Or leave the ancient races of the East and the primitive tribes of Africa, and consider the life on the land of the various peoples of Europe. Life is a more strenuous business, perhaps, for them. Fewer of them, it may be hoped, live so near the starvation level, but not many of them live very much above the margin of subsistence. Do we find amongst the rural communities of Southern Europe, in the various countries which now make up the German *Reich*, in Italy and in France, in the Peninsula, in Holland and in Belgium, in the Scandinavian and Baltic countries, or even in Britain itself—do we find in all or in any one of these countries an organisation for production of food which is comparable, even remotely, with that for the production of coal, textiles, steel, or of any of the other necessities of life ? I think not.

Or go into the new countries, in which the white man has ousted the native races—North America, Australasia—all of the colonization and expropriation in them occurred during the growth of the industrial age in Europe. Do we find, therefore, that big scale organisation, mass production, specialisation of function in labour and management, the organisation and application of scientific and technical research, the methods of joint-stock finance, the study of distribution and of consumers' demand—do we find that these are characteristic of farming in the new countries, as they are of the factory industries in the countries which have peopled them ? Do we find, for example, that the production of raw cotton in the Southern States has anything in its organisation comparable to that of the spinning and weaving industries of Lancashire ? Do we find that the wheat growers of Canada and of the Middle West operate on the scale of Joseph Rank, Mark Mayhew, the

C.W.S., or the big port millers of the Atlantic seaboard? On the contrary, the methods of production of raw cotton compare with the spinning-wheel and the hand-loom stage in manufacture, and wheat production is carried on in units no larger than in the days when every parish had its wind or water mill.

For some reason or another, agriculture has remained, almost the world over, the one-man business which it was in its inception. Before the days of international trade, people occupied the land that they might produce their own food and raiment, and over the greater part of the world that is the primary use of the land to-day—occupation by people who are farming to feed themselves. The opportunity for commercial farming is very recent, as concerns most producers. In the new countries, after the occupation of the maritime districts by the first settlers for the purposes of self supply, the great hinterlands were developed for commercial agriculture on the basis of exchange. The great cattle ranches, the wheat and maize growers, the cotton producers, are all of them farming for an export market, exchanging their produce for the other necessities of life. But with the exception of the squatting and ranching concerns and the plantation industries, tea, coffee, rubber, which are large-scale industries financed mostly on the joint-stock principle, the production of food and raw materials from the land, over all the world, is organised in one-man units. With the exception of the new countries, whose only means of development was to export food so as to create credits in the manufacturing countries, these one-man units are engaged mainly in self-supply.

However, it is England with which we are concerned, and here you have a situation which differs from that of almost any other country. You have got a society in which almost every activity has been industrialised. Agriculture has resisted the process more successfully than any other craft, but in a small country like this, where there is not the segregation of occupations which you find in many countries, it has been impossible for farming to maintain the peasant character which it still has in most of Europe. The opportunities of farming for profit in the earlier days of the industrial revolution led to the engrossment of farms, a decrease in the number of farmers, and an increase in the number of wage-labourers. The competition of the urban industries for labour caused wage-rates in farming to rise to levels which gave the farm-worker a standard of comfort far above that of most peasant-farmers. In the last twenty years, most of the conditions under which labour in industry is organised and paid—collective bargaining, regulation of hours of work, payments for overtime, holidays with pay, unemployment insurance—have been applied to the farm-worker. Has this changed agriculture, anyhow in this country, from a peasant's art, with all his manual dexterity, to something comparable with the great industries of the country and all that their organisation for large-scale production and economic distribution has achieved? I think not.

It is true that there have been great changes in farming. In my own lifetime, the village blacksmith, the village wheelwright, the harness maker, the miller, the maltman, the tanner, have disappeared almost completely, the industries they followed being now concentrated in the hands of a few firms in the great centres of population. But even

so, farming is in no other sense industrialised. If you seek an analogy, you might say that it represents transport at the paddle-steamer stage, or manufacture at the water-power stage. Farming is still a family business, an industry of little capitalists with £1,000 or so invested and employing two or three men. Even when now and again one of these people manages to put his head up and to collect a great area of land under his management, there is no continuity. At his death, the business breaks up again into the multiplicity of little units from which it has been compounded. When Mr. Douglas Vickers died, the Vickers works at Sheffield and elsewhere were not dismantled and sold, but the Board of Directors appointed another Chairman, and the great business went on, without even a ruffle on the surface. When the first Lord Trent died, the great chain of stores which he had forged was not broken up into its component links. But when Mr. Samuel Farmer died, occupying 25,000 acres of land in Wiltshire, and leaving nearly half a million of capital, the whole of his great organisation broke up. There had been no flotation of the business, no creation of a joint-stock enterprise, no assembly of a board of management, no training of departmental managers. The Board of Directors, and all the Departmental Managers, the Technical Experts, the Sales Manager, all of them wore the same hat, and when the head that it adorned was laid to rest, the great enterprise came to a full-stop. The same was true of the great corn-growing business built up by the late Mr. George Baylis. The purchase of requisites, the farm management, the sales of produce, all of it was his concern and his alone. He could walk five miles in a straight line from his front door on his own farm land, but the organisation did not survive his death. Is farming an art or an industry?

Farming in this country, at all events, is undoubtedly a commercial enterprise for most men. Farmers, or most of them, I suppose, are self-suppliers of eggs, poultry, milk and vegetables. I remember the time, too, when over large areas they supplied themselves and their men with practically the whole of their meat, and when they had their own wheat ground into flour for their bread. Those days are gone, and to-day most farmers are buyers and sellers rather than self-suppliers. This may or may not put them more in the category of business men than of artists, but it detracts greatly from the economic strength of their position.

Let us get down to bedrock. There is no person in a safer economic position, or whose future is more assured than the self-supplying peasant farmer. He has no wages bill, and no other business outgoings to meet except rent, and if he be a land owner as well as occupier, there is not even this. His crops may yield well and his livestock may thrive, giving him a fair standard of living and a marketable surplus which will enable him to put something by or to purchase necessities other than food. Or he may have bad harvests and his cattle may suffer from disease, and he will have to tighten his belt and draw upon the stocking to meet essential personal expenses. But nothing short of a total crop failure and the extinction of his little herds and flocks can deprive him of a living of some kind. That is the great strength of peasant farming. You may call it an art or you may call it an industry, you may call it a mean, poverty-stricken way of life, but it has an economic strength which not all the federations, or combines,

or cartels, or any other organisations of big business can ever attain.

To the extent that farming in England has advanced from the purely peasant position, this strength has been sapped. As employers of labour, farmers compete with the industrialists, and they have to conform, more or less, to the general wage-level of the country and to conditions of industrial employment, such as regulated hours, holidays, etc. But at the same time, as producers of food, they have to meet the competition of peasant farmers, or of the one-man farmers of one kind or another, all over the world, who know nothing of wage-rates, restriction of hours or other industrial conditions. And so it happens that the trade cycle, which periodically causes the peasant to tighten his belt and to cut off his little luxuries, reduces the small capitalist farmer to the position in which income no longer balances expenditure, and if he has no reserves, that means the bankruptcy court. Agriculture is debarred from the safeguards which industry enjoys in like circumstances. Prices may fall, for a period, below costs of production, but the factory can work short time, it can reduce its staff, it can even close down temporarily. But the products of farming are the products of nature. Land must be ploughed and crops must be brought to harvest if it is not to become weed-choked and derelict, whatever prices may be. Stock must be fed, cows must be milked, if the farmer is not to lose his capital as well as his income. And so, however much you industrialise the original peasant so that he may take advantage of all the means of production and organisation which have led to high wages and big profits in other forms of enterprise, there will remain these fundamental differences which cannot entirely be levelled out. Is agriculture an art or an industry?

However, agriculture in this country has been largely commercialised, notwithstanding these inherent differences, but it does not follow that farmers pursue their businesses purely as money-making concerns. Quite a number of men can be found who still farm land for a hobby. They breed horses, cattle, sheep, or pigs not so much for their commercial value, as to win prizes in the show ring. Whoever heard of anyone embarking upon the production of, say, galvanised iron dustbins at a steady annual loss, because he liked them, or in the hope of winning a diploma for galvanised iron dustbins at the British Industries Fair? Farmers such as these have obviously other sources of income, but even those who are entirely dependent upon the land and upon the sale of its products are often influenced more by what they like to do than by what the prevailing economic conditions would have them do. In the '80s and '90s of last century, when corn prices were sinking every year to new records of depression, hundreds of farmers went driving ahead as they always had done with the four-course rotation, although nothing but bankruptcy stared them in the face unless they could find an alternative better fitted for the times. Even to-day, you can read that farmers ought to be ensured prices which will enable them to produce "what their land is best fitted to grow." To judge by some of the derelict farms in the country, what most land is best fitted to produce is brambles, thorns and gross weeds of every kind. What these farmers mean is that they are following practices which they like, and they do not want to have to change them. Only a few weeks ago, Mr. Hosier, the pioneer of cheap milk-production by the open-air milking bail, told me of a farmer who said

to him: "If I could only make profits by following your methods, I would rather chuck farming altogether!" They do not want to change their ways or to have to think afresh. Farming for many of them is as much a way of life, as a living.

Nor do they get much encouragement to think from their scientific advisers. In passing, I might point out that agriculture is the only one of the nation's greater enterprises in which it is taken for granted that the initiation and conduct of research cannot be expected of it. The State has stepped in to the tune of hundreds of thousands of pounds a year to provide a research and advisory service for farming such as no other industry enjoys. But this research and advice for long years was directed entirely, and even to-day is directed mainly, towards assisting farmers in the art of greater production. They are to farm more intensively and the scientific worker will tell them how to manure to this end. The milk yield of their herds is to be increased, and they are advised how to feed their cows to achieve it. They are to improve the quality of their herbage by certain means, and so on. Hardly ever are these ends related, on the one hand to their cost, or on the other hand to the consumer's demand. It is less a question of "Does the country want more wheat?" than "How can I grow more wheat?"; less a question of "Will it pay me to feed higher for more milk production?" than "Can I turn my 600 gallon cows into 800 gallon cows?"

Even the Treasury, that impersonal, soulless body which exists to devise means to extract money from reluctant taxpayers by every sort of ingenuity, decided years ago that farming was "something different". Alone among His Majesty's lieges, the farmer is not required to make an Income Tax Return. The Treasury accepts his plea that he is a man of the fields, not a man of the office, and how can he be expected, after his long hours in the open air, to sit down to book-keeping in the evening? So the Treasury is content that he should not present his accounts, and assesses him to Income Tax on the extraordinary assumption that there is a parity between the rent that he pays and the profit that he makes.

The State has gone farther than this. By many Acts of Parliament involving heavy and unrecoverable expenditure, it has associated itself with a policy of Land Settlement which involves the dismemberment of some of the bigger, capitalist holdings and their subdivision into many little individual farms. In other words, in the official view, the art of management, the increase of labour efficiency by mechanization and specialisation, the devolution of control—none of these things have any force or application in the ancient art of farming.

Well, there it is. The biggest enterprise in the country still organised in units under one-man management, pursued as much as a way of life as for a living, and recognised by the State as being outside the treatment normally meted out by it to the great industries of the country. I ask you my question once more—is it an art or an industry?

Authors Abstracts as an Aid to Documentation.

By GORDON S. FULCHER.

The writer regrets that he is unable to attend the Annual Conference of the Association. Since 1907, when, as a graduate student of physics, I was faced with the problem of finding out all that had been published about canal rays I have been interested in the documentation of scientific literature ; and I would have appreciated an opportunity to exchange conclusions and suggestions with members of the Association.

By authors abstracts we mean abstracts printed at the beginning of articles and prepared or at least checked by the authors.

Such abstracts are not new. They have been familiar to physicists for twenty years, ever since the *Physical Review*, *Astrophysical Journal*, and the *Proceedings of the London Physical Society* began providing authors abstracts in 1919-20. Now many other journals of physics, including *Annales de Physique*, *Acta Physica Polonica*, *Japanese Journal of Physics*, *Journal de Physique*, *Physica*, *Technical Physics of USSR*, and some Argentine, Italian, and Spanish journals also provide authors abstracts.

Why have such abstracts been provided ? The main purpose is to assist readers in two ways :

(1) By *indexing* the articles, telling what subjects are dealt with. Titles are usually short, averaging ten words or less ; and as you all know, many titles do not tell accurately what the article covers. If the reader is uncertain from the title as to whether the article deals with a subject of interest to him, the abstract is there to tell him. Thus one function of the abstract is to supplement the title as much as necessary to supply the reader with a sufficiently precise and complete index of the contents.

(2) By *summarising* the contents. As a rule, articles give many details which are of interest only to a few specialists. For most readers a brief summary of the conclusions and new results, such as is given in an abstract journal, is sufficient. Experience shows that in length the abstract needs to be only about 5 per cent of the article on the average to supply all the information that many readers desire.

Thus the authors abstract, intermediate in length between the title and the article (in fact averaging close to the geometric mean in number of words), is provided for those who wish to read more than the title, but less than the complete article. It differs from a summary, first in being placed more conveniently, at the beginning of the article, and second, if properly written, in being a unit in itself, understandable without reference to the article, and suitable for reprinting in an abstract journal.

Have authors abstracts been found useful by readers ? After such abstracts had been appearing in the *Astrophysical Journal* and the *Physical Review* for over two years, a questionnaire was sent to each subscriber by the National Research Council. Of the 805 readers who replied, according to their answers,

88 per cent read the abstracts before the articles always or usually;
45 per cent read many abstracts instead of the articles;
only 3 per cent read no abstracts instead of the articles;
To 59 per cent some abstracts had been useful in locating information;
to 58 per cent some abstracts had been helpful in understanding articles.

In reply to the question "Should the abstracts be continued?" 93 per cent said "yes," and only 4 per cent said "no." Among the remarks volunteered were the following: "They frequently give all the information necessary about the articles"; "They double a man's range of reading"; "They are great time savers." These replies would seem to prove that in the case of these two journals at least, the authors abstracts were found to be useful to the great majority of the readers. And they raise the question as to whether such abstracts would not prove useful if provided by other scientific and technological journals.

Authors abstracts, which adequately index and summarize scientific articles, are also suitable for reprinting in abstract journals without further labour than that of translation when required. Scientific articles, which are not provided with abstracts, are now abstracted for each of several abstract journals so that each article is now abstracted from three to six times. For the more than 100,000 scientific articles published each year, this abstracting requires over 500,000 hours of work per year, enough to keep 200 highly trained scientists busy all the time. Most of this work would be unnecessary if all scientific articles were provided with adequate authors abstracts. Moreover, abstracts would appear in abstract journals with less delay than at present. Finally, by calling attention to new material which might otherwise be missed, authors abstracts would help abstract journals to cover their particular subjects more completely.

Authors abstracts aid documentation, then, in two ways. They assist readers, including scientific and technological workers, to find information of interest to them in articles; and they assist abstract journals, the most important tools of documentation, to publish abstracts more promptly and at less cost in the time of abstractors.

The value of authors abstracts as aids to scientific documentation, was discussed at a meeting of the Sub-committee of Bibliography of the Committee of Intellectual Co-operation of the League of Nations at Brussels, in May, 1924. This international committee consisted of the following distinguished members: H. A. Lorentz (chairman), Madame Curie, and Messrs. Cooper (of Science Abstracts), Paul Langevin, Marie, Jean Gerrard, Thirring (of Vienna), Cotton and Debye.

This committee unanimously adopted a resolution with reference to authors abstracts which reads in part as follows:

The Sub-committee of Bibliography of the Committee of Intellectual Co-operation, after consultation with several qualified experts representing societies and bibliographic organs, considers it desirable in the interests of scientific work that the following recommendations should be adopted.

1. That all articles published by scientific journals should be preceded by abstracts, prepared as far as possible by the authors themselves, in conformity with precise rules without which these abstracts

lose the greater part of their usefulness. The Committee recommends particularly the rules adopted by the *Physical Review* after a careful study of the question. . . .

2. That these abstracts, intended to serve as a basis for analytical bibliography as well as to facilitate the reading of the works or memoirs, should, in order to insure their conformity with the rules adopted, be revised by the editor of the journal or by a special editor. . . .

3. That those journals should be approached first which publish works dealing with physics and its extensions in the direction of physical chemistry, astronomy, mineralogy, engineering, etc., in order to call their attention to the importance of applying the principles indicated, and to obtain their views on this subject.

6. That the abstract journals in general physics should establish collaboration among themselves so as to simplify their work and render it as rapid and complete as possible. . . .

8. That, in order to render the best service in the way of scientific information, each abstract journal should publish an alphabetical subject index based on an analysis of the contents of the memoirs or abstracts, in the form, for example, that has been adopted by *Chemical Abstracts* or the *Physical Review*.

9. That the abstract journals, in order to render their information as complete as possible, should communicate with the general bibliographic services, such as the regional Bureaux of the International Catalog, and arrange with them to obtain all the necessary information."

Paragraphs 6, 8 and 9 are quoted to show that the recommendations in relation to authors abstracts were part of a quite complete programme of documentation for physics and related sciences.

The resolution of the Sub-committee was adopted by the full Committee on Intellectual Co-operation at its session of July, 1924, and a small committee was appointed to communicate with various periodicals and to try to obtain their collaboration. I have received no reports as to what this committee accomplished. It is true, however, that as far as authors abstracts are concerned, physics seems to be ahead of the other sciences ; more than half of the journals of physics provide authors abstracts, and in recent issues of *Science Abstracts*, more than half of the abstracts of articles printed in English are credited to authors, having been reprinted without much change.

Even in physics, however, the progress made in the fifteen years that have passed since 1924 is disappointing. One might expect that after it had been shown that 94 per cent of the readers of the *Astrophysical Journal* and the *Physical Review* find authors abstracts useful, and after such a distinguished committee had recommended them, the practice of providing such abstracts would become general. Unfortunately, as you know, this has not happened. The great majority of scientific and technological journals still do not provide authors abstracts. You naturally wonder why not.

While the added printing cost (about 5 per cent) may be a deterring factor in some cases, it seems probable to me that the chief reason for the reluctance of editors to provide authors abstracts is the fear that this new feature may require considerable extra editorial work. If so, I may be largely responsible. In my articles, and in the above resolution based on my recommendation, the importance of having the abstracts

conform to precise rules, and the need for careful editorial supervision was emphasized too much, perhaps. When editor of the *Physical Review*, I had found the abstracts prepared by authors unsatisfactory, as a rule, and I gladly spent several hours on each article, re-writing the abstracts.

I am now convinced that so much editorial work is unnecessary. The programmes of the meetings of the American Physical Society, printed in advance and later published from the same type in the *Physical Review*, contain abstracts of all papers, limited to 200 words each, which, although prepared by the authors without editorial revision, are as a rule excellent. Obviously authors can prepare equally good abstracts for publication with the articles. To do so, however, they must regard the abstract, not as an introduction or summary associated with the article, but as a *separate, independent entity*, written as they would write an abstract for an abstract journal. This view point is a little difficult for an author to accept, since he naturally prefers to have his article read in full, and dislikes furnishing an abstract which will satisfy most readers; but the co-operation of authors can certainly be obtained. When he realises that more people will read the abstract than the article, and that the abstract will be reprinted in several abstract journals, the author will see the importance of preparing an adequate abstract. This he can do more easily, of course, if he is not required to prepare the abstracts according to very precise rules or in a particular form such as in the form of an analytic abstract.

It is true that the authors abstracts provided in the *Astrophysical Journal* and the *Physical Review* in 1920-5 were analytic abstracts; that is, abstracts which each furnish an index of contents (based on a thorough analysis of the article) which stands out clearly from the summary of the contents. (*Science* v. 54, p. 291, 1921.) This type of abstract, developed at the National Research Council, obviously fulfils the dual purpose of an abstract more effectively than the ordinary type. However, the experience of abstract journals shows that subject indexing is a highly technical matter; even good abstractors cannot be depended upon to supply useful sub-titles. Moreover, each abstract journal, with its own system of indexing, prefers to supply its own sub-titles. Therefore, while I still think that abstract journals should provide analytic abstracts, with italicized index headings selected by the indexer on the staff, if I were the editor of a scientific journal, I would not insist upon analytic abstracts. Instead of re-writing most abstracts myself, I would endeavour to obtain adequate abstracts from the authors. This is the policy of the present editors of the *Physical Review*. This policy not only reduces editorial revision to a minimum, but also benefits the authors; for the preparation of an adequate abstract involves an analysis of the article which, particularly in the case of the younger authors, may bring out weaknesses of arrangement and even of logic.

Some editors may take the position that an article with a summary at the end does not need an authors abstract at the beginning. But, as stated above, aside from the fact that it is more conveniently located, an adequate authors abstract differs from the usual summary in being independent of the article and also more suited to give the average reader the information he wishes, as a rule. This was recognised by the London

Physical Society in 1910 when they began requiring an "abstract" as well as a summary to be printed at the end of each article in the Proceedings. They moved the abstract to the beginning of the article in 1920.

The practice of providing authors abstracts would be extended to other journals more rapidly, of course, if some organisation such as the International Federation of Documentation becomes interested in the matter. Suppose such an organisation sends to the editors of each scientific and technological journal a copy of this article together with a request for answers to a few questions such as the following :

A. If you provide authors abstracts,

1. What directions do you give authors for their preparation ;
2. What is the average length of the abstract in relation to that of the article, approximately ;
3. Are the abstracts intended to be suitable for reprinting in an abstract journal ;
4. Are all, many, some, or none of your abstracts so reprinted ;
5. Do you have a special editor for the abstracts ;
6. About how much time is spent for editorial revision of abstracts ;
7. What suggestion have you for reducing the editorial work to a minimum, without reducing the quality.

B. If you do not provide authors abstracts,

8. What are the main reasons why you do not ?

If a report summarising the results of such a questionnaire, giving suggestions as to how adequate abstracts can be provided with a minimum of editorial work, and answering the fears of reluctant editors by quotations from the experience of editors who now provide adequate abstracts, if such a report is sent to all the editors, surely many would be encouraged to adopt the practice, and progress to the desired goal of an adequate authors abstract with every scientific and technological article, would be greatly accelerated.

Errata and Corrigenda.

By J. N. GOLDSMITH, PH.D., M.Sc., F.I.C.

"*The World's a Book . . .*

'Tis falsly printed, though divinely penn'd,

And all th' Errata will appear at th' end."—F. Quarles, 1660.

This generation will bequeath to its successors a great number of Journals and books containing uncorrected errors. The object of this paper is to submit some suggestions with regard to published or admitted errors, and particularly to suggest to librarians a more general use by them of marginal corrections or references, when permissible, by slip, pencil, pen or rubber stamp, according to the kind of publication amended. It is assumed here that the publisher or author would have printed the correct text had it been possible at the time of going to press. In the writer's view, Errata Lists are not a sufficient protection against errors.

On the other hand the Errata Slips of H.M. Stationery Office, if inserted beside the relevant text, may be satisfactory, subject, however, to two criticisms. (1) The title, volume and page should be printed on the slip; (2) the slip should be dated if it has been inserted after publication, for in this case there have been in effect two editions available to the public.

The argument now put forward for marginal notes depends on the following considerations which lead up to photographic copies. A volume may contain a list of the Errata in the same volume or in an earlier volume of a series. Each later list must be consulted to find the Errata in the earlier volumes, but Errata many years old are apparently not recorded. Journals may contain statements subsequently corrected or entirely withdrawn by their authors, sometimes one figure or measurement, in other cases an entire page, rarely the whole paper. The author's amendment is preferably published in the same Journal as a separate note entitled "Correction," which is then indexed and also abstracted and indexed by the Abstracts Journals. Many times, however, the amendment is unobtrusively contained in a subsequent paper and may be overlooked.

A library may supply a photostat or film photograph of part or the whole of a book or Journal, but is not obliged to look for and photograph the corresponding Errata which, moreover, may be in a later volume, or even in a different Journal; Errata in *B.C. Abstracts*, 1926, for *J.C.S. Abstracts*, 1925. The purchaser of the photo copy is at a disadvantage compared with the reader in a library who may—but seldom does—consult the appropriate lists of Errata.

The writer suggests that it should be a usual library service to mark the places in the chief Journals and reference books where Errata exist, according to publisher's or author's own statements. The text should not be altered, but one method would be for an asterisk to be inserted in the text and the volume reference of the Erratum in the margin. The Erratum is sometimes too long to copy or is a diagram. Proof-readers' methods but with the reference, would be satisfactory in some cases. Whatever the method, the existence of an Erratum cannot

be overlooked, each reader is not obliged to make his own search; the time saved and the value of the amendment can be set against the dislike to a slightly altered appearance of the page.

No doubt the correction of errors in publications goes on to a greater or less extent in libraries. The Librarian of the Central Medical Library, where about 300 Journals are received, writes (3/8/39), "as each new number of a Journal comes in we scrutinise it for mention of earlier errata, note these in ink on the relevant page—either inserting the erratum slip or noting the page on which the correction is published, in the margin. It does not take long if it is done regularly as Journals come in, and is not at all difficult." In the volumes of *British Chemical Abstracts*, in the Patent Office Library, Errata have been noted by asterisks and references marked by means of a rubber stamp. This method indicates the word or figure which has been advertised as wrong by the publishers.

In support of the policy of marginal corrections I will select two writers, first the Editor of *Chemical Abstracts* of the *American Chemical Society*, who writes (28/7/39), "we do not attempt to correct in *Chemical Abstracts* mistakes in original papers which are corrected in so-called errata columns or pages because theoretically at least these corrections are supposed to be made in ink in the original papers by librarians and other subscribers. The basic consideration underlying this policy is our realisation that *Chemical Abstracts* is not source material. We believe that anyone vitally interested in the information given in an abstract should, and is likely to, consult the original paper. If the intention of the errata sheets has been carried out he will find corrections there."

In 1576 William Lambard (*A Perambulation of Kent*) was of the opinion that the list of Errata should be used to correct the text. "Sundry faultes (gentle Reader) have we unwittingly committed in this Booke. . . . Such therefore as be most dangerous, we have here set before thine eye, beseeching thee to amende them with thine owne pen, before thou enter into the Booke. The which labour (we doubt not) but thou wilt the more willingly undertake in this one copie, when thou shalt have rightly weighed, what a worke it would be for us, to perfourme it in sixe hundreth bookes." The edition was 600.

A compiler of a great work of reference may be cited, C. D. Sherborn (*Index Animalium*, 10 Vols., Cambridge and London, 1902-33). The Introduction begins, "In a work of reference, the first pages which should be studied are those containing the 'corrigenda' (p. lvii) as they represent the sum of the compiler's labours after the main work has passed the press." In the Epilogue (1932-3) there are 114 pages of "Additions and Corrections." Part II, Introduction, ix, states "many hundreds of these cases [references] have been pursued only to find that the author has quoted a previous author wrongly either by name or for the genus."

J. W. Jeudwine (*The Manufacture of Historical Material*, 1916, Preface, vii) finds some compensation for such errors. "A reference . . . may be misleading . . . sometimes it may not bear out the text; it is not infrequent not to find it at all. But . . . in looking up the reference the reader may be led further afield and may find something of value."

Errata Lists have an air of infallibility partly because they do not

publish the source of the correction and partly because it would be supposed that the author could not be mistaken twice on the same point. Although the correction is often obvious it would be an improvement if authors indicated the various types of Errata, e.g. source since corrected (S), context (C), or printer (P), or by giving the reference. The Errata List should be paged, when necessary, and added to the index, in writing.

The fear that errors exist leads to laborious checking of authors' bibliographies; experts agree in exhorting students to verify all references (e.g. C. D. Sherborn, *op. cit.* Epilogue, 1932-3, vi, "for accurate work it is necessary for the student to verify every reference he may find.") The question arises whether an author's bibliography could be regarded as guaranteed if a record existed in the library that it had been checked by, say, two independent and experienced workers? Or if the references could be checked once for all by photographing the title pages of the Journal and the paper cited, a great deal of subsequent repetition work might be spared. The accepted abbreviated title of the Journal should be printed by the publisher on the title page of the Journal so as to permit easy photographic reproduction. Errors due to copying and printing could be avoided if the photographs after suitable masking could be reduced to printing blocks, and these assembled to form a bibliography.

Frequently the prefaces of reference books invite readers to call attention to errors and omissions. Specialists are aware of errors in these books, but do not always communicate them to the publishers. The library might provide an Erratum Book in which the specialists and others might record errors and give supporting references. From time to time these might be assembled and communicated to the publishers concerned.

An argument for such a book can be derived from B. A. Soule (*Library Guide for the Chemist*, McGraw Hill Book Co., 1938, p. 197), "too often one finds absurd statements. . . . These errors, of course, are typographical and obvious to one familiar with the subject. When present in original articles they form an additional menace, however, because they may get into the handbooks. Once there, it is not easy to eliminate them."

Cross references, of the nature of Errata, when there is a strong argument for them may also be inserted in the margin. A few instances, more or less important, may be cited. *Appleton's Cyclopaedia of American Biography*, 6 vols., 1886-9, has been used as a source. J. H. Barnhart (*J. New York Botanical Garden*, 1919, 20, 171) discovered that fourteen biographies of botanists were entirely fictitious. Miss M. C. Schindler's researches (*American Historical Review*, July 1937, 42, 680-691) have raised the number of forgeries to forty-seven.

O. Uplavici (*Centralbl. f. Bacteriologie*, 1887, 1, 537 and later copyings), was discovered to be not an author but a title meaning "On dysentery." Clifford Dobell, the discoverer, remarks in substance (*Parasitology*, 1938, 30, 239; reprint, *Isis*, May 1939, 268), for fifty years the mysterious "Dr. O. Uplavici" has haunted books and periodicals in Europe, America, and even the Far East—and it thus seems high time that his ghost should be laid. This name might be placed on an "Index Expurgatorius" since the original paper was written by J. Hlava.

Schweizer was not Schweitzer in spite of statements to the contrary. E. Schweizer discovered the well-known solution (*Vjschr. naturf. Ges. Zürich*, 1857, 2, 395). Péligot (*Compt. rend.*, 1858, 47, 1034) discovered a method of preparation still used. Polite exchanges took place (*J. prakt. Chem.*, 1859, 76, 344) in which each author sought to give the credit for the solution to the other; during these civilities Péligot (l.c.) temporarily lost his accent and Schweizer was awarded a "t" which should be deleted. Another case—L. J. Thenard's descendants attach much importance to the name without the accent (Communication, 25/5/38, from M. A. Lacroix, Secrétaire perpétuel de l'Académie des Sciences) often wrongly Thénard.

An error may not be far to seek, the *Shorter Oxford English Dictionary* states osmium is "so called from the pungent and peculiar smell of the metal." In the *Concise Oxford Dictionary* and in *Murray's English Dictionary* it is the oxide which smells, and this is the view of Johnson Matthey & Co., who speak with authority on the platinum group.

Further instances could be given of mistakes awaiting correction, but the subject has caused annoyance in the past. Sixtus V, who published no marginal variants in his Vulgate of 1590, inserted a Bull, threatening with a sentence of major excommunication those who might seek to amend the text: "minima aliqua particula mutata . . . aut ad marginem vel in textu adscripta . . . majoris excommunicationis sententiam eo ipso incurret."

The writer's chief purpose is to call attention to the danger of photographic copying of uncorrected text when the instructions do not include finding and photographing the Errata. Publishers should be invited to print Errata on one side of the paper, gummed at one end which has a serrated edge, and with the separate items sufficiently spaced to allow of satisfactory cutting. Each item should be dated. Marginal references, when permissible, appear to be a simple method of warning the copyist. G. Crabbe had something to say on this subject (*The Library*, a poem, 1781, p.7):

"Our patient Fathers trifling themes laid by,
And roll'd o'er labour'd works th'attentive eye;

* * *

Till every note and every comment known,
They mark'd the spacious margin with their own;
Minute corrections prov'd their studious care,
The little Index pointing told us where;
And many an emendation prov'd the Age
Look'd far beyond the rubric title-page."

Note.—It is a great pleasure to acknowledge the interest shown by Sir William Bragg, Mr. A. A. Gomme, and Mr. F. Donker Duyvis. The last named also communicated (3/8/39), the U.D.C. classification 025.8 : 655.255.2 (Treatment of the books in relation to typographical errors).

The Cinema and the Information Services.

By THOMAS BAIRD.

(1)

I had hoped to tell you something of an experiment in public education which has been going on in this country for over ten years. It may not be inappropriate still to do so for, though the events of the early days of September have changed many things, education must remain of supreme importance. The war has chased many worthy things into the shadows and there they may have to lurk until a happier day, but while it has been impossible for us to meet together it is imperative that the kind of activities which we represent should go on. The very special talent which is found in the libraries and the information services of the country cannot be shut away from the light because of a war. Instead, their practical values will become more and more precious as our emergency becomes more acute.

Already much of our work has been absorbed into a new way of life. The weapons which were forged for peace are finding a new use. This is not to say that they have now become part of the machinery of destruction. Many of the special cultures of the land which are in our keeping, and whose dissemination is our business, have become infinitely more precious. These subjects of special knowledge must, more than ever, be preserved if only that from their custodians may come the treasured handful of seed which later on may be cast into the battered earth.

In the intermediary days of adjustment there will be a new and acute demand for the specialised knowledge which is in our keeping and, while the present techniques of dissemination are being worked to the full, new tactics will be required to augment them.

Almost overnight, by evacuation, traditional education has had a jolt, from which it may not recover for the period of the war. There has also been a new disposal of the population. Individuals, families, whole communities have been uprooted and despatched to new and sometimes strange surroundings. A great task lies before the educator and it is one which may not be possible of solution on traditional lines. Every known teaching technique will require to be called into action to achieve an adjustment unparalleled in our lifetime and which in history may rank with that following the population shift of the Industrial Revolution.

It may be that this upheaval in the traditional flow of events, in our educational system, in our community living, in our agriculture, and in the disposal of our industry, may in fact bring about the domestic revolution which many have dreamed. But it will only be so if the special educational facilities of our country can quickly gear themselves to a new task. We must help the schools to continue with the best of the traditional education and also to face the new problems that are already arising. We must think of the hundreds of thousands of housewives who have been displaced from their kitchens, who are faced with new food problems, and new purchasing problems. Many of them

are finding themselves with access to better but strange food. They, too, must be educated to a new domestic life.

Already the radio has proved its value in the emergency and a reasonable amount of broadcasting has been directed to the new and special problems. The new economics of housekeeping, ideas of domestic conservation, a new and very vital Broadcast to Schools, and pertinent advice on precaution and protective planning have all had a place. Overnight the B.B.C. has become an information bureau of the first importance.

I believe film has as significant a part to play, especially that type of film which we have called documentary, and in order that we may consider its special value in public education I take up the account of its links with the special libraries which I would have given at your conference had that been held.

My subject was to have been "The Role of the Technical Film," but the present situation calls for a wider view than that of the purely technical film.

(2)

When, some ten years ago, we began working with what is called documentary film we were not primarily concerned with problems of technical education. Many people did, of course, adapt the film to the teaching of skills and the description of processes. But at that time we were concerned with a larger issue and to-day that issue has become writ very large. John Grierson has put it concisely in an article he contributed recently to the *Fortnightly Review* :

"It was from the beginning, an adventure in public observation. The documentary film movement might, in principle, have been a movement in documentary writing, or documentary radio, or documentary painting. The basic force behind it was social, not aesthetic. It was a desire to make a drama from the ordinary to set against the prevailing drama of the extraordinary : a desire to bring the citizen's eye in from the ends of the earth to the story, his own story, of what was happening under his nose. From this came our insistence on the drama of the doorstep.

"We were, I confess, sociologists, a little worried about the way the world was going. When first the rights and wrongs of universal suffrage were discussed, some said it would only occupy men's minds with the shadows of far-away political battles. Many of us, after the War, thought that the old pessimists had been right and that citizenship had, in fact, become a matter of shadows. The world had become very complex—and civic comprehension difficult. We were conscious of the abstraction of life under the new metropolitan skies. We saw that poverty of community life went hand in hand with the lack of civic comprehension. And of one thing we were pretty sure—that the old stiff-backed educational system was not doing very much to help towards comprehension. Nor, particularly, was the new myth-making machinery of the star-struck cinema. But if we were jealous of this myth-making influence and made film the instrument of our door-step drama, it was partly by accident. We were interested in *all* instruments which would crystallize sentiments in a muddled world and create a will toward civic participation."

Behind this you can sense the difficulty of every special information service. Each of you is dealing with a highly specialised section of what you firmly believe should be the public knowledge. You are each faced with a dual problem. First, to make intelligible technical or specialised knowledge; but beyond that is the second, the problem of the relation of that special contribution to the whole body of public knowledge. We know that without an umbilical to the corporate knowledge we may give birth to a museum piece.

In finding the points of focus for our films we nosed around the educational process applying our special usages of film to this sector and to that. Sometimes we made the purely technical film but most of the time we were making films which tried to see the skills and the techniques of the specialised workers in some kind of community perspective.

(3)

Many of us came from north of the Tweed. We were still unregenerate enough to believe that learning could not be easy and we refused to be Montessoried or Daltoned into playing at educating. We did not, in fact, believe that the cinema, this most magic of all lanterns, was magic enough to teach the skills and co-ordinations which generations of our fathers had acquired with pain and labour. The educational tendency did at times remind us of the mock advertisement for a language course which promised the student fluency in French at the end of twelve easy lessons or six difficult ones.

We were conscious of a more fundamental problem: and that was the almost complete lack of comprehension of how the skills and techniques penetrated the life of the community. The skills were held in no sense of value by either the skilled worker or the benefiting community.

“Many things were happening to give one hope that a new and more inspired kind of education was coming, in which men could stretch their sight and get a wider sense of themselves. The popular press was storming the bastions of the dull, and there was but a difference of degree between the sensationalizing process which was unhealthy, and the dramatizing process which gave colour and perspective and substance to men's lives. The introduction of the active verb in news reporting seemed something deeper than a whim. The film, in spite of the fol-de-rols of its vicarious excitements, was stumbling unconsciously but certainly from ‘Westerns’ to epics and from actors to people. The radio was coming. The film with its documentary possibilities was, indeed, just one among the magic pointers laid against the blackboard. But I liked the idea of a simple dramatic art based on authentic information. I liked the idea of an art where the dramatic factor depended exactly on the depth with which information was interpreted. I liked the notion that, in making films of man in his modern environment, one would be articulating the corporate character of that environment and finding again, after a long period of sloppy romanticism and the person in private, an aesthetic of the person in public.”

When we made our first “technical” film we hardly expected we should create new and super-skilled workmen overnight. We were

not surprised when some teachers of technical subjects, having used our films on technical subjects, complained that the processes were not depicted in enough detail for the students to be able to imitate the manipulations with satisfactory results. They complained that they still had to teach the pupils.

But we reaped our harvest where we expected.

I can remember one day when we showed a film called *Banking for Millions* to the workers of the Post Office Savings Bank. We had gathered together some of those who work in the Savings Bank Headquarters at South Kensington to see what was, in many respects, a rather pedestrian film. It was a very straightforward account of just what happens on the seven floors of that huge building. It was an account of office management in perhaps the most rationalised office in Great Britain. The actors were the 3,000 operators who handle postal orders, keep books, and count counterfoils. The film described the technicalities of a score of miraculous machines which overprint, sort, and count forms and orders. There was enough manipulation and machinery to make the heads of the best of us reel. But a few hundred eighteen-year-old girls cheered it all. Not for its technical dissertation, nor because it would help them to be more deft in their handling of their myriad postal orders; it was for another reason. For the first time many of them saw just what happened to the stacks of postal orders when they had put them right way up. In truth, many of them saw for the first time just what their own job was. They had known it only as a manipulation and sometimes as a rather dull routine. In the film they saw it as part of an integral process. They saw its perspective and they saw that it had something to do with the real world. In the film they saw this for the first time and they cheered. They were cheering themselves.

This film was meant to be a *public relations* film; it turned out to be a much better *domestic relations* film. In the film we showed the operators' separate lives in a corporate whole which many of them had barely suspected. Their public life began to enrich their private life.

(4)

This little film became something of a symbol for us and our experiences with it confirmed our belief that such technicalities of modern life could be enlivened and that an interest could be created in them if they were made intelligible. It was not a case of explaining them in themselves, but of explaining them in the context of the working world, of explaining them in their community significance.

Our task was rather obvious. We had to make as many films as we could and we had to relate them to the educational system whenever the authorities, or sometimes rebel pioneers, showed some wider policy. We had to add the observing and describing power of film technique to any movement in education which was trying to widen the experience of people as citizens.

From the word "go" we knew that our place was not in the picture palaces. These were too far committed to a purely entertainment policy. People went to the cinemas when they wanted to shut the world out for an hour or so. Even if they did not object to a film with an educational turn, its effect was fairly successfully drowned by the feature film. We accepted this and we moved alongside the

school teachers, and more closely alongside the more informal educators. The adult institutes, the public libraries, the special exhibitions and thousands of evening classrooms became our theatres. We created our own film libraries to serve the W.E.A. lecturers, the study groups, the National Associations for this and that, the community centres and the social service groups. (One of the most outstanding of these film libraries and one with a splendid record among thousands of lecturers and teachers is a department in one of the special libraries of this Association : I refer to the Imperial Institute.)

Now, at the end of some ten years, we have an annual audience of some 20,000,000 individuals in Britain seeing the films we make and discussing their topics. A dozen or so film libraries send out the films on request and a score or so of projectors travel the country, day in, day out, giving shows of the films in this Women's Institute and that Town Hall or Public Library.

Hundreds of films each year are aligning themselves with the work of the special information services, helping people to get a hang of the real values of their lives. These films carry a picture of the world as it is changing. They report the change as it is happening. They enable some people at least to keep abreast of their own lives and, by doing that, to integrate their public job and the public jobs of others with the stream of their own individual progress in the community.

We are, in fact, wrestling with the very old problem of the relations between private and public life. We hope to enrich personal life by getting view of the larger corporate life of the people.

The problem of the technical film is therefore not entirely a pedagogic one. It is more correctly a philosophic one. The problem is not to teach people how to do things, but rather to have them discover why things were done, and how, when things are done, the life of the community is affected. Back of this lies the biggest problem of all, the whole problem of the objective of democratic education.

(5)

Traditionally our education has been in no sense democratic. It has been either authoritarian or snobbish. It was based on say-so and imitation. Technical education was of the say-so variety, being made up chiefly of instruction without either public or personal context. Cultural education was throughout tinged with snobbery. Indifferent silk purses were to be made out of honest sows' ears.

Technical education was taught as an aggregation of skills. Bit by bit skills were acquired. Manipulation added to manipulation summed up to a craft skill ; but not to a culture. It was an education *in means* and not *of ends*. This is no new discovery. The W.E.A. discovered it a couple of generations ago and as a makeweight purveyed Culture. But it was not the culture of these same skills. It was not even the culture of the skilled workers' leisure ; it was the bookish culture of the "gentleman." The worker was introduced in twenty-six lectures to the heritage of the Renaissance. He danced a minuet in dungarees and pit boots. He read *Romeo and Juliet* at one hour and bred whippets in another. There was no vital relation between his work and his culture. The Renaissance did not mean a thing to the non-bookish majority. In Scotland we were a little better off, for there the Renaissance did not mean anything to anybody. There had never been a

courtly tradition of influence. There was consequently less gulf between the culture of the gentleman and the leisure of the worker and, even in these later years, when that gulf has been artificially introduced, dons and dockers together follow the Glasgow Rangers and, at a University supper, the Professor of English Literature is more likely to sing *The Ba' at Kirremuir* than *When Daisies Pied*.

Still in the popular mind there was the gulf. Educational policy, dictated by committees of aldermen and town councillors or often, worse still, by universities, embodied the aim to bridge the gulf and there is still a great deal of talk about bridging the gap between technics and culture, between work and leisure. In truth the gap to be bridged lies in an entirely different direction.

The fissure in daily life was not between the say-so of education and the go-as-you-please of leisure: it was, and is, between the say-so of education and the work of the people, between the skills of the individual and the corporate working life of the people. Communities are based on work and economic limitation and not on leisure. No working community has ever had any great trouble filling its leisure. The educational breakdown is between education itself and the working relations of individuals. There is no education for a corporate life of working people. This is a gap which no amount of country dancing and literary criticism can bridge.

The idea of education being a compensation, a perfuming of leisure, to offset the day's work is snobbish patronage. It sounds suspiciously like *Strength through Joy*. It refuses to recognise that there is no leisure problem as distinct from a work problem. There may be a failure to appreciate the influence of the encyclopedists on the French Revolution, but there has been a fairly shrewd appreciation of the influence of Dixie Dean on the fortunes of the clubs in the First Division. There has, however, admittedly been some ignorance of the incidence of Income Tax or of the levels of nutrition in the different wage-earning groups.

In our films, therefore, we attempted the quickening of public opinion in so far as that meant the direction of public attention to the various areas of human activity in which development was taking place and in which new hope for a fuller life seemed to lie. We believed that this process of directing the public attention should conform to the conditions of democracy itself. It might be a comparatively simple thing to direct public attention and, at the same time, violate the basic principles of democracy. More specifically we were in peace time concerned with the realisation in individual minds of certain social sentiments.

At that time we believed that if democracy was to survive we, of the democratic peoples, had to realise more deeply the problems which could only be solved on the level of the public conscience, and with the concurrence of the public good will.

This task of directing the public attention, without violating the democratic ideal, we took as a problem of education. Educational advisors supported our educational technique for our educational philosophy.

Teaching method proceeds on three or four main levels and each of these is designed to satisfy some psychological need of the human being. For example, most of us have a feeling of *curiosity* about how

things work. To satisfy this we accumulate analytic knowledge. The small boy who glues his eye to the knothole in the fence to watch a man digging a hole in the road is already evidencing the fundamentals which direct the scientist in his highest pursuits.

The little girl who with two needles and an odd piece of wool knits her first chain of stitches is evidencing that *constructive* desire which in later years makes some build bridges and others build empires. Here is a need which is satisfied by putting together acquired knowledge into some kind of *synthesised* pattern.

Most teachers to-day, however, would insist that analysis and synthesis are by themselves too cold and too factual. Man does not live by facts alone: there is also a basic psychological demand for the warmer tones of living, and most of us turn to human relations and to Art and Poetry to satisfy another side of our natures.

In addition, teachers clamour for a new subject in the curriculum. Sometimes they call it Citizenship and at others Sociology of one kind or another. In it they try to link the analytic knowledge, the synthesised accumulation and the human relation into another pattern—a pattern to which the key is Value. If the facts, and the construction built of facts, and the tide of human life, is not thought to be moving in some direction, something is missing in life itself.

It seems simply that the human beings, whatever the psychology of the matter may be, look for the design and purpose in life. There is only a difference in degree between the man who reads the newspaper, listens to the news bulletin and sees the news-reels, and then tries to make sense of what he has seen and heard, and the philosopher who looks for teleological purpose in the Universe.

What purposes and values which men seek need not be defined in great detail now. No matter how we might express ourselves, we should rapidly agree. The democratic ideal posits that any individual and any community should be characterised by something of a social sense, by a sense of law which liberates men instead of fettering them, and by a sense of respect for individual personality which gives integrity to both Society and Freedom and to Life itself, and which admits that men are free and equal not because they have a vote but because they are men.

Without these three characteristics men feel their purposive pattern incomplete and unsatisfying.

Democratic education, therefore, in providing the material on the level of these psychological needs of the human being, has also to do so within this scheme of special value. It must be analytic to satisfy curiosity. It must synthesise to be constructive, it must have something of drama and poetry if it is to be human, and it must reveal the fundamental values without which life is robbed of its integrity, without which it is impossible to reconcile the common purposes of corporate identity with the live and let-live spirit implicit in the essential worthiness of the human individual.

Reverence for individual personality is the keystone of Democracy.

If you examine the two or three hundred documentary films which have been made in the last ten years, you will see that the different approaches conform to the four fundamental levels of the educational process which I have outlined. This is no accident. From the beginning those who guided the documentary movement have conceived it as

an instrument not so much of public entertainment as of public education. We have tried to satisfy, in and out of schools, these fundamental needs by which the human community seeks to understand itself. There have been *analytic* pictures showing how this and that industry or Government Department works. There have been *synthetic* pictures showing how these industries and departments with their multifarious activities penetrate into the life of the Community. There have been—let us call them—*dramatic* documentaries in which the interest has been centred not so much on the analytic details of the job done as on the human qualities of the people who perform them. And, lastly, there have been those documentaries dealing with *social problems*. These have tried to give us a clarifying observation on the problems which are uppermost in the mind of inquiring people. Each of these has tried to show how democracy is working in our daily life.

This, then, is how film can direct the public opinion within the sacred limits which the democratic ideal ordains. It is a plan to articulate the life of the community. It is a plan to treat the abstractions of economics and sociology in terms of human beings—in terms of real human beings. In its higher flights it seeks to secure a vision of the growing points of our community living. By film we report what has been done, what is being done, and what is to be done. In peace time, thirty or forty films a year were being made by the various groups who committed themselves to this policy of public education. Something like twenty directors and producers had been gradually mapping the life of the community in terms of the achievements and aspirations of the people. Over twenty million people each year saw these films in this or that village hall, in this or that night school or university extension class-room. And the effect as it seemed to us was more human interest in some of these and understanding of such problems as housing, health, education. With an ever growing map to outline the perpetual plan of democratic action we were, at least, one small step nearer the creation of a public sentiment concerning the very bases of our daily life. Twenty million people each year were, by means of film, considering the growing points of the community. They were thinking of these problems of housing and this problem of town planning, of that problem of health, just at those points where their own activities as everyday citizens might have some bearing. Growing points are also the points where one may push. And now the war has come and the need for a clear policy of public education is greater than ever and, I hope, more evident.

The main thesis still stands. The educational gap is not between the real job and a fake culture, but within the relations which should obtain in practice in the world of our daily work, in the world of our practical citizenship.

The war has already emphasised this. Evacuation, for one thing, has disturbed the fabric of our life and many people are for the first time seeing something of its warp and woof. And they are obviously puzzled by what is being discovered to them. They have been brought in contact with things they would have denied the existence of six weeks ago. A year ago some of us would have said that the upper and middle classes condoned the slums. To-day we know that to be an unjust criticism. The truth is we did not really know about the

slums. Now we know that in very truth we were ignorant, uninformed, perhaps we can say, uneducated.

The Food Ministry has just fixed rationing allowances for war-time. Some of us are gallantly preparing to tighten our belts. The Minister of Health is being asked how a sixteen-year-old child can be fed for 8s. 6d. per week. The interesting fact is that some seven million adults have been living at this level for years and another seven million at less than half that level. These war-time allowances are in excess of the peace-time purchasing power of half the adult population of this country. These are things the people did not know. The reaction to the result of moving thousands of evacuees is ample proof of this ignorance. The heritage of learning and culture which makes up our traditional education has once again been proved to have little to do with the life of the vast majority of the people. The public knowledge has once again been proved sadly inadequate. The public calls out with no uncertain voice for bearings, for leadership of opinion.

It is true that special libraries, research groups, information services have tried to make facts such as these known. Their task has been difficult. The domestic upheaval now taking place in the country may not make it any easier but it certainly makes the circulation of reliable information much more important. The adjustment to a war-time way of life, to a new routine which may outlast the war, calls for accurate information and for a full utilisation of those media of education which will help people to gain their bearings in the new situation and to inform them quickly of changes.

The immediate educational job has three facets.

First, the actual situation must be described and the nature of the changes must be made clear and intelligible.

Second, comes the examination in dramatic terms of the effect of these changes on the lives of the people. For example, what is the influx of city people to the country doing to the village life of England and, conversely, what is village life doing to the evacuated town dwellers?

Third, what is the upheaval doing to local government? We shall perhaps become conscious of the waterworks for the first time when we find that reservoirs designed to meet the needs of 1,000 people are called upon to serve those of 2,000, and of our transport system when it becomes overloaded.

The discussion of these aspects should be an education in the life we are living and a preparation for the life we are to lead. Information along these lines should be descriptive, making us conscious of the very fabric of our life. And this is perhaps the most necessary task of education to-day. *We failed miserably to perform it in peace time: it is imperative to carry it out in war time.* I believe that the special information services have here an unmatched task to perform and I know that film, with its peculiar ability to observe and its unrivalled power to describe, is essential to these services.

Those in authority require to be persuaded, and by sound educational opinion, that an articulation of the essence of citizenship such as this shall, in the long run, do more for the *morale* of the people than ten times the amount of frothy entertainment which is the present war-time plan for the cinema.

In Britain there has been a sad failure to realise the cinema as a

national asset. In peace-time we have taken to the cinema as we would to aspirin and the imminent danger is that in war-time we shall be purveyed only a more potent dose of pain killer. If that is the case, and it seems likely to be, we shall throw away the opportunity once again to pursue a scheme of public education which uses the best instruments of our time, one which in war-time would strike the deeper chord in the hearts of the people. Only intelligible truth can give people that *morale* of which the essence is integrated living.

The first public reactions to the Ministry of Information bore this out. How much truth the Ministry gave out or suppressed in the first month of the war is a matter for conjecture, but the important thing is that the public were bored by the negative quality of the information and suspicious of its validity. Nothing could have been more damaging to the *morale* of the people and no amount of diversion is a remedy.

The need was obviously for positive statements. A day-to-day explanation of the British attitude, made intelligible in terms of the concrete achievements or disappointments on the Home Front, as well as on foreign fields, would have been something to bite upon. I suspect that, in fact, evacuation was a brilliant piece of organisation achieved within the very essence of the democratic way, *i.e.* achieved without legislation and mostly with voluntary assistance. We also *know* that the upheaval brought to light a mixed bag of discoveries. It brought out humour, one of our priceless possessions, and it prompted kindness and charity. These were positive things which might have been stated if not glorified. Also brought into the light of day were less happy discoveries, weaknesses in our way of life, sometimes unsuspected economic hardships and barbaric living conditions. There was no good reason to hide these away. It would have been much more in the fashion of the democratic character to admit them openly as the discoveries they were to many people and list them among the tasks to be undertaken.

With a little imagination the remarkable triumph of evacuation could have been presented as the singular achievement of democracy that it was. Its occasional imperfection would have made the truth of its basic success all the more human. The real comparison was not with the bureaucratic ideal of perfection but with the all too realistic evacuation of a devastated Poland.

Rumour ran rife because there was not enough positive information to spin out for the day. Doubt and boredom became the enemy and many of us found ourselves tuning in to Rome No. 1 for the news bulletin. My interest in the newspapers was exhausted at the end of the first week and I found myself taking down *Wuthering Heights* and pulling up my chair to the fire. It was, I realised, a pretty comment.

The public mind completely lacked a well-informed background. The failure to carry on an appropriate instruction of the public led to doubt and uncertainty and then to despair. Despair called for escape. I chose *Wuthering Heights* : but I am told the pubs broke all records.

With a well-informed background many people would have had the bases for competent judgment. They would have had, as the girls in the Post Office Savings Bank had, a perspective on the day-to-day details.

They would have had a spiritual staying power, healthy and honest and built on sanity and reason.

With this basis of the new way of life explained, the next educational task is the more strictly technical. This second task is a foreground educational one. We must, then, actually instruct people to perform the technics of the new way of life. We have already seen housewives lose their heads in their new and strange surroundings. The food available in the countryside has puzzled them. An adequacy of milk and eggs is a source of embarrassment. They have had to learn again to cook. They have had in some cases to learn to spend up to the evacuees allowance. They have had to learn again to live. There are already signs that the Women's Institutes in the country and the Townswomen's Guilds in the smaller towns will become units for the dissemination of specialised knowledge in what promises to be a nation-wide scheme of domestic education. That in turn will only be part of a greater public education in realities, an education in living.

Even very young children will require to relearn much of their short lives. The street games which have sustained generations of city boys and girls will be forgotten and new ones will have to be learned. We have already seen that boys and girls can be miserably unhappy because they do not know how to play in a field. This may not be so gigantic a task as some imagine but it is a problem needing a gentle and expert solution. The nursery school has here its biggest task and its biggest opportunity.

The present billeting arrangement can only be temporary. It smacks of improvisation at every turn and it could not very well do anything else. It was a rough-and-ready solution of a desperate situation. Evacuation to billets tore down one edifice of communal life and scattered the parts into the countryside. In reception areas the residents have accepted these scattered individuals and for the moment the evacuees share the village firesides, the village beds and the village baths. In peace-time there are laws of public health and in a long-drawn-out war the good sense which ordains these laws will have to be consulted. Makeshift can only last for a little while and sooner or later we shall have to build. Then the best architects and planners will have to design the new communities of the English countryside. They will have to instruct the people in living in the new houses. If they do their job well enough, they may solve the housing problem in England.

We can readily imagine the village institutes, the county libraries, and the church halls becoming the outposts of our information services with scores of voluntary workers to organise and carry through a great new public education. These workers, the teachers and the informal educators, will need all the help they can get. They will require to draw on the expert knowledge of the doctor, the dietician and the nurse. Each little village will require to be a point of focus for all the special knowledge which is in your keeping. You, in turn, must organise that knowledge, prepare it anew and present it with all the skill you can muster. You must forge as many links as you can between yourselves and these hundreds of willing souls who will be the public educators. Radio you will use to speak to the millions. Books will help you to address the limited few. Posters will dramatise your concentrated wisdom and film will help you to give the perspective

of it all. With film you will be able to observe things as they happen and you will be able to show the how and the why of things as well as the things themselves.

This is what film has to offer you.

When the Board of Education has put together the pieces of its shattered curriculum it will have moved forward more than it would have done in a peace-time generation. When the informal educational services of the country have performed their new task, we shall perhaps have created a generation capable of profit by the peace which we hope they shall inherit from us.

B.B.C. Libraries and Information Bureaux.

By GUY POCOCK.

GENERAL INTRODUCTION.

Ladies and Gentlemen,—Let me say at once how very greatly I appreciate the honour you have done me in asking me to come and address you, on behalf of the B.B.C., on the subject of the Corporation's Libraries and Information Bureau. It is an honour indeed, and one which I accepted with the greatest of pleasure—and, it must be confessed, not a little trepidation. And if you ask me why the latter, I can only tell you that when I was asked to address this assembly I was given this solemn warning: "Be sure of your facts: remember you will be addressing *hard-boiled Librarians!*"

Well, Ladies and Gentlemen, I don't know whether you will take that as a compliment or not; for I am not sure that I could tell the difference between a hard- and a soft-boiled Librarian; nor am I quite sure that I understand why a Librarian should be boiled at all. But I think it is complimentary, and I am certain it sounds formidable; and so I decided that my only possible course was to keep within the bounds of my own experience, and give you a comprehensive and not too detailed view of the B.B.C. Libraries and Information Bureaux as I see them in my daily work, and leave it to you to fill in the picture from your more profound experience.

Now this mysterious business of Broadcasting is a NEW art—or science—or both—and new in two senses. First in the sense that it was only born the other day. Sixteen years ago the first Broadcasting Station was set up in England. A year later there were 600,000 licences. To-day there are nearly nine millions. Assuming an average audience of four to every loudspeaker, we have a probable audience of at least 36,000,000 in this country alone. And it is NEW in the sense that Broadcasting is a thing that had never happened in the world before, and requires a NEW TECHNIQUE—a new sort of variety show—a different kind of drama—a method of speech that is neither lecturing nor public-speaking, but just Broadcasting.

And it is an astonishingly VARIED art. There is, indeed, *no subject* that broadcasting leaves untouched. I don't think I ever realised more clearly *how complex and varied* a business Broadcasting was than when the other day I attended a meeting of an Advisory Council in the great Council Chamber. One had only to look round at the faces of our advisers to realise the vast range of subjects which we were trying to handle. There was everybody there from the Archbishop of Canterbury to Mr. George Robey! (I wish I could tell you what it was that George Robey said to the Archbishop that made him shake with laughter! But I was too far off; I couldn't hear!)

Well then—in dealing with an art at once so novel, so universal, and so infinitely complex and varied, you may imagine how manageable and how multitudinous our sources of information have to be.

The slightest mistake, and we are bombarded with telephone messages and shot at with vituperative letters. The least success, and we are overwhelmed with queries as to authorship, availability, and heaven knows what. And quite apart from anything that may ever have been broadcast, the B.B.C. is looked upon as a Universal Information Bureau to be rung up at all hours of the day or night with the strangest and most inconsequent inquiries. For all this the Corporation is prepared. Let me take you, then, in imagination, for a tour round the Libraries and Information Rooms of Broadcasting House, quickly, one after another, and I'll try to touch the salient features of each as we look in ; in the time at our disposal we can hardly do more than that.

I propose to deal with them in this order :

1. First, the General Reference Library, its off-shoots and its outside contacts.
2. Then the News Library with its vast and varied organization for the documentation of news.
3. Then the Music Library. You may gauge something of the extent of this when I tell you that it now weighs over 100 tons !
4. Next the Gramophone Library of 65,000 discs.
5. And then the fascinating and unique Library of Recorded Programmes.
6. Then comes the Picture and Photograph Department.
7. Then the Library of Plays.
8. And lastly the Intelligence Bureau, for answering the innumerable questions that come by post or over the telephone.

And to all this we may add the elusive yet comprehensive work of the Listener Research Department.

I think, Ladies and Gentlemen, you will admit that this is rather a tall order. To deal with it in an hour is rather like "doing" Rome or Athens in a day ! I'll do my best, however, to give you a general survey, and we will start with the *General Reference Library*.

GENERAL REFERENCE LIBRARY

This Library is run on the Dewey system—Verb. sap. It is a *special* library, highly specialised, which has grown up to meet the peculiar needs of the new art. One might really call it a "General Special Library." It began in a remarkably small way—six books to be precise !—and though even now it is not very large—there are 7,000 volumes in all (there is no room for more)—it has been most carefully chosen and is very comprehensive. There are large numbers of factual reference books, for instance, where answers to questions can be quickly found ; there are *standard* works on widely differing subjects, from orchestration to the technique of Propaganda ; and while it would be hopeless to attempt to cover fiction, the Poetry Library is virtually complete.

But if the library is small, though intensive, it is in contact with several libraries outside which deliver books regularly on request. If a book is urgently needed, for a talk, for instance, one can always phone for it, and send a boy.

What do staff use the Library for ? Well, its uses are so varied and multitudinous that one hardly knows where to start. For instance, a commentator is going to describe a procession, a most difficult thing

to do, as one must not only keep up a vivid descriptive chatter while things are actually happening, but must be prepared to fill in the gaps with relevant and interesting talk. The commentator has likely enough to keep up his sleeve the histories of houses or statues, or what not, on the route—and for all this the Outside Broadcasts Department refer to the Library.

Or perhaps some national bigwig has expired unexpectedly ; some Victorian play is to be re-vivified over the microphone ; some descriptive programme is to be broadcast which requires authentic and unmistakable local colour ; for all this kind of thing the programme officials hunt the Library all day long, while the Librarian and four assistants give expert help and advice.

Here, too, the musicians and music announcers will find all they need in the literature of music and the biography of composers—how such a work came to be written, and to whom dedicated ; while an admirable technical section of the most up-to-date books on the theory and practice of “Wireless” is available to the Engineering staff.

Then there is the Topographical section—for talks such a “A Tour through Devon,” or a description of Salisbury Cathedral ; and, of course, there are excellent maps. Scrapbook programmes have to be catered for : questions such as—“Who was the first woman to fly the Channel ? Is she still alive ? Or are her descendants alive and available ?”

Or, the other day I myself wanted a picture of a Ragged School for a School Broadcast pamphlet. The Library turned up an old Illustrated London News—and there it was.

Let me give you a single example of the kind of Library Research that is going on all day long. I went down to the Library the other day determined to take down, for the purposes of this paper, the first example that came my way. This was it. A “Talks” official came in with an uncompleted script : the lecturer had left a blank for verification. “How long,” he asked the Librarian, “did it take to get to Australia when Cranford was written, and how does that compare with the time taken by aeroplane at the present day ?”

Not a very difficult question when once the date of Cranford is known—1853 ; and the answer 120 days as compared with 10 by air in 1939 was given within five minutes. (The record in 1859 was seventy-eight days).

In this connection it should be noted that television has produced a whole new set of questions relating to stage technique, costumes, ceremonial, and so forth—all of which can, indeed must, be answered by reference to the Library.

1. What did women wear, for instance, the average sort of woman, at the time of the struggle for the vote ?
2. When did “bloomers” come in ?
3. What is the correct procedure for taking the oath in court ; *which hand* do you raise ?

In this kind of thing, and in certain types of programme, the Library staff undertake research, and also prepare bibliographies.

The Reference Library acts again as an Information Bureau by telephone, and all sorts of questions are shot at the Librarian and are answered—over the phone—only after the most careful verification.

How many inhabitants are there in Czecho-Slovakia, for instance? What is the minimum height of a Guardsman? What is the average weight of an elephant? Did the Romans give us the raspberry?

Then come the newspapers. The London and chief provincial papers are available in the Library. Press cuttings are systematically filed and cross-indexed under subjects and personalities, and are in constant use by the B.B.C. staff, and a summary of B.B.C. activities as commented on in the papers is prepared and circulated every week. Copies of Parliamentary questions and answers are also sent to certain officials.

Some 400 magazines and journals are taken by the Library every week, and are read, marked, and inwardly "tabbed" for any reference to the B.B.C. before circulation—technical papers to the engineers, dramatic papers to the Drama Department, and so on.

In close touch with the central Reference Library are the small reference libraries in the Regional offices. These libraries consist chiefly, as one would suppose, of books of specific regional interest. They are bought by the Head Library, but kept on the spot for regional use. Besides them these small regional libraries have subscriptions with local outside libraries which cover most of the needs of regional broadcasting.

So much for the General Reference Library—a sadly skimpy survey, I confess, but we must get on if we are to cover them all in the time!

NEWS LIBRARY.

Next the *News Library*, a young thing, not yet five years old. It was born in 1934 in a bare room—bare except for an incredible desk and two old files of newspapers. Books? they asked. What did the News Library want with books? But in time a case was made out, and *Whitaker's Almanack* was conceded, as a Reference Book. May's *Parliamentary Procedure* on the other hand was *not* allowed, not being a Reference book. It could not be a Reference book because it did not come out annually, and had within it no columns of statistics!

However, all innovations and improvizations begin like that; and when it had become obvious that more was needed for the obituary notices of King Alexander of Yugo-Slavia and M. Bartou than *Whitaker*, and a borrowed copy of the *Encyclopaedia Britannica*, books and shelves began to arrive, and before many months were out a pukka News Library had been organised something on the lines of the *Times* Intelligence Department. Not quite the same—though the essential features are the same. That is, the *Times* Intelligence Department assists a paper going gradually to Press at a late hour at night, and incidentally finds information for all other departments, and for subscribers, during the day. It spreads out a great bulk of information over a longer period.

The News Library of the B.B.C. provides information for a News Service, which begins much earlier, and issues far more frequent editions. And like the *Times*, it serves other departments and subscribers—that is, licence-holders—by telephone and by post. News items are repeated over the telephone, or sent as typed extracts. Other departments are served in other ways. TALKS, for instance, want to verify facts to be used by, or suggested to, a speaker; or perhaps they want to check a speaker's credentials, or even to find out where he is.

In the same way News Talks need background and facts for *their* speakers.

Again, something unexpected looms suddenly into the limelight. Who is competent to speak about it? And what club can he be dragged from and brought as a lamb to the microphone? An observer, perhaps, has to go to a conference at Geneva or elsewhere, and has to be briefed about the probable agenda, and given books and press cuttings over which to spend a happy time in the aeroplane on the way out. Or DRAMA, again, with "features" on hand, will ask where, at the moment, the *Cutty Sark* is moored; or OUTSIDE BROADCASTS may wish to know where they can get in touch with Bruce Hobbs, the jockey.

But all those things are by the way. The chief purpose of the Library is the *documentation of News*. A story comes from the news agency—a miserable skeleton of a thing—and it has to be filled out with flesh. And when the bones are properly articulated, and the body built up, it all has to be overhauled before it is re-written as a news "item." A date, the essential line of the story, the geographical location, the historical parallel—any or all of these may be wrong—and the News Library must see to it that they are *not* wrong.

All this building and checking is organised in six distinct lines:

1. Reference books.
2. Government publications.
3. Press-cutting systems.
4. *Times* bound volumes.
5. Bulletin index.
6. Pronunciation index.

The reference books are the usual ones, and cover as many countries and subjects as possible: Survey of International Affairs, Parker's Returning Officer, and so forth.

Government publications are Blue Books and White Papers, reports on trade, international negotiations and all the rest, all kept in boxes in alphabetical order. At least, not *all*—only those likely to prove important. As a side-line, the News Library has to find out the publication date of an important issue, and snap it up quickly so that a speaker has time to study it.

But since any work of reference is out of date before it is published, there is the Press-cuttings Library—British, Empire, and Foreign—and the cuttings are labelled with the name and date of the paper from which they are taken. It is a box and folder system divided into four parts—Biographies; four different alphabets: Afghanistan to Zanzibar; Aeronautics to Zoology; Abingdon to York; the late King Albert to ex-King Zog. But vast subjects such as Trade need boxes to themselves with accurate sub-divisions, such as Exports, Imports, and Production.

For the years before 1934 we rely on bound volumes of the *Times* with indexes. Broadcasting moves quickly, and it is not often that a more detailed source of reference is needed for earlier years.

The Bulletin Index means this: The Director General may want the exact wording of a bulletin; or a licence-holder wants the repetition of an item; or a News Editor wants to know *exactly* what was said in the news before. And so every bulletin is minutely indexed upon a

card system that splits every item according to country or subject, and shews in which bulletin and on what page it appeared.

Lastly, the Pronunciation Index to help the announcers. Now everybody listens to the News. We know that in all sorts of ways. For instance, the graphs of the water companies, and the electricity and gas companies, show that people regularly put aside their washing and their cooking to *listen*. And when I say everybody, I mean an average of four people to every loudspeaker—or something like 36,000,000! A pretty big audience, and a highly critical one; and announcers have to mind their P's and Q's in the matter of pronunciation!

There used to be a pronouncing dictionary, and several books on broadcast English, but practice shewed that since there was never any time to lose, a quick, simple, and all-embracing system was necessary. Therefore, a card index system, now running to twelve drawers, was installed, and under a single alphabet all known rulings and suggestions on words, names, and place-names are docketed.

MUSIC LIBRARY

And next the *Music Library*. Years ago, when I first broadcast from Savoy Hill, I remember seeing the Music Library as it just started. That was in 1922. The staff consisted of two. The Library was on the top of a kitchen range in a building in the Strand!

"In those very early days," the chief Librarian said to me the other day, "I remember how we started collecting pieces of music, buying a bit, or borrowing a bit from friends, but even after six months we had hardly 500 musical items on top of that kitchen range!"

Compare that with to-day. Now the staff numbers thirty-two adults and four boys; and the music, mainly housed in Broadcasting House, weighs, as I have already said, more than a hundred tons! In the orchestral section alone there are 23,000 items ranging from short entr'actes to vast symphonic works. 7,000 of these are in duplicate, and 2,000 in triplicate; and the stock of vocal scores—oratorios, cantatas, operas, musical comedies—is something over 200,000!

Then there is Chamber Music—and arrangements for Dance Bands; and a special Military Band Library of 4,000 items; while musical scores of every description—valuable MSS, modern works, and so forth, are constantly being added to the library. If expense or copy-right makes purchase impossible, they are hired from outside sources—musical publishers, private libraries, the composers, or their executors.

The Library, then, is the great central music depot, which supplies not only Home and Empire music programmes, but sends out to Alexandra Palace for television programmes, and to all the Regional stations. (The Regions have small music libraries of their own from which they can draw on occasion, but most of their music comes from us; and there is a special section which deals with despatch and return).

Scores are lent to visiting conductors and to foreign stations, such as Hilversum and Stockholm.

How is the great mass of material arranged? Well, the music is divided into sections according to type: orchestral, choral, organ, and so on, and the orchestral items are arranged in numbered containers on which are shewn the different orchestrations possible. And

each number corresponds to one on a card index. When each item goes out a *card* is put in its place shewing where it was sent to, and when. And on its return the date of performance and date of return are added.

Before a performance, master copies of each group of stringed instruments are sent out, once only, to the leading players for bowing and expression marks, but, of course, the conductor gets his first. The number of orchestral programmes handled by the six orchestral librarians is thirty to forty a week, not counting rehearsals. These librarians attend all rehearsals and performances to deal with any difficulties that may arise. They put all the parts round on the stands, and collect them afterwards, and bring or send them back to the Music Library. If it is a great choral work, or musical comedy, hundreds of vocal scores and chorus parts are distributed and collected in the same way.

All this entails wear and tear, and all day long and every day four men are hard at work mending and repairing; for often enough the paper is poor and the original binding ramshackle.

The whole of this vast library is minutely indexed, of course, and the various systems have grown up as the stock has grown. You want an orchestral work; you look it up under name, or under title; and again under sub-headings such as Overtures, March, Ballet Music, Symphony, or whatever it may be, and there are thirteen of these sub-headings. Vocal scores are card-indexed under titles; military band works under composers; songs under both title and composer. For the latter the Bizada Strip Index is used, which is capable of unlimited expansion and cross-reference. In our case it is used as an alphabetical title index of songs. Briefly, the titles are typed on to a sheet of eighteen strips which is then broken into individual strips ($7\frac{1}{2}$ in. by $\frac{3}{8}$ in.) or more, as the case may be. These strips are then inserted into their allotted place in a frame which holds fifty each side. Fifty of these frames fixed upright into a rotary stand comprise one index, which, therefore, holds 5,000 strips. In reference, as the approximate place is found, the frame is laid back, thus revealing 100 titles at a glance (assuming that the frames are full).

And in addition there is an alphabetical catalogue of composers of every work in the library—and each work has its number which is shewn in all catalogues and indexes. It is astonishing how quickly a song or a concerto, or whatever it may be, can be produced.

Some works have to be hired; and cards shew the agents, the fee, instrumentation, publishers, how long it takes, and so on. This index is mostly under composers.

And you cannot imagine how many telephone enquiries the Music Library gets from its 36,000,000 audience! A special staff is kept busy all day long answering questions—Who composed a piece? Where can it be bought? What key is that song in? They begin ringing up as soon as ever the song or the performance is over, and often enough while it is still going on—“Is that the B.B.C.? Where can one get that song so-and-so has just sung in the Regional programme? And can you tell me what key it is in?”

And lastly, there are personal enquiries—and a stream of players, accompanists, and conductors visit the library to refer to the works themselves.

GRAMOPHONE LIBRARY

And that takes us through to the *Gramophone Library*. Like the Music Library, the Gramophone Library began in a very small way and has grown and grown till now it consists of 65,000 discs, in spite of the fact that vast numbers have been withdrawn, as I will explain. The whole of it is housed in Broadcasting House, and the bulk of it consists of music, and what is euphemistically called "dance music," and all issued and supplied regularly by the commercial gramophone companies. The B.B.C. library gets *two copies* of every record made in England, and in a good month will acquire some 400 records. All for nothing, of course. Many of these are unsuitable for broadcasting, of course; others are used constantly and get worn; and some rapidly get out of date. But even so they are not wasted. Great numbers are sent to a central authority who distributes them to hospitals. As I myself am on the Borstal Committee, I tried the experiment of giving a gramophone to the Boys' Wing of Wandsworth Prison, and the B.B.C. gave something like 200 discs. The boys sit at the open doors of their cells for forty minutes, twice a week and listen; and the Housemaster tells me they are very keen about it, and the effect is good.

We have a foreign section—Telefunken, Odeon, and many others. These records are not supplied regularly, but are ordered on the request of programme departments.

Then there is an *Effects* Section—potted noises almost all made by the B.B.C., which has a recording van which travels about the country collecting jolly noises; all sorts of noises useful in broadcasting; sea-gull noises; ship sounds; cup-tie crowds; trains leaving stations, and so on and so forth. In old days such noises often had to be extemporized: for "laughter without" you collected everybody who wasn't doing anything, put them on the stairs, and said "now laugh!"—and sometimes one forgot about them and left them laughing there long after the play was over.

There are three Effects Libraries in Broadcasting House attached to Drama Department, Variety Department, and Gramophone Library, and the records are catalogued alphabetically under general headings such as Aeroplanes, Trains, Footsteps, and so on.

Most interesting of all, perhaps, is a small collection—about 300—of records of historical interest by such artists as Caruso, Melba, and Patti. Many of these are unique and irreplaceable. And some few are too worn for broadcasting, but intensely interesting for all that: Gladstone making a speech, which is *just* possible to broadcast, and Tennyson reading his own poems, which is not. Nowadays very important records are made indefinitely durable by special process. Some day they will be as thrilling as if we to-day could hear Queen Elizabeth addressing the troops at Tilbury, or Chaucer reading his poems to the Royal Family. I want to speak more about this in a minute.

The general system of indexing and arranging is very simple. The records are stored on shelves, each with its number on the cover according to number and manufacturing company—Decca, Regal H.M.V., Columbia, etc., so that one can generally refer from the commercial catalogue straight to the shelf and find what one wants immediately. But, of course, there is a full index under artists, com-

posers, and title, with cross references. Every card gives the fullest information together with commercial number and make. It is a system that has grown up after trial and error, and found to be by far the simplest plan.

About 1,200 records are sent out of the library every week, and rather more than half are broadcast in gramophone recitals, plays, or features, in London and in Regional programmes. And when a record leaves the library its cover remains behind, stamped with the name and date of the programme for which it is withdrawn, and, of course, its return is checked. Sometimes there is a scramble for the same record at the same time : hence every record is kept at least in duplicate. Of one Sibelius symphony there are six complete sets !

It is really the job of programme officials to build up programmes, and they constantly visit the library for reference, and to try over records ; but librarian staff are always ready to advise about music and effects. People hardly realise, perhaps, that a programme of gramophone records, such as Christopher Stone's, is organised, compiled, and presented with every bit as much care and imagination as is given to an actual broadcast by living artists from a studio. It is an expert's job—not a matter of playing a number of records just one after the other !

RECORDED PROGRAMMES LIBRARY

Now for the *Recorded Programmes Library*, which consists for the most part of special recordings made by the B.B.C. The library has a double job. First they file discs and film-reels, and produce them when required. They have to make sure, too, that they are fit for broadcasting. Sometimes the discs and reels are made for programme use : someone is just off by aeroplane, perhaps, and his talk has to be recorded. (This is *always* announced, by the way). Or actors want to hear how the play sounds when rehearsed. Or a speaker—such as Sir Donald Tovey last year—wants to hear how his voice and the piano *balance*. And very strange it is to hear one's own voice "played back"—very strange, and rather humbling ! (For one never hears one's own voice as it really is, owing to resonance in the antrum).

The other function is to select material to keep in the library as a record in sound of contemporary life. For this there are six categories :

- (1) Events of historical interest, such as the Coronation in 1937 ; or the Pope's Coronation in 1939.
- (2) Events of special interest, such as the Boat Race, or the Grand National.
- (3) Personalities, both of the past—Gladstone, for instance, of whom I spoke just now—and of the present, such as G. B. Shaw, Gandhi, and Freud (recorded at his new home in London).
- (4) Development of the technique of broadcasting—topical shows, such as " Band Wagon " and radio-dramatic production such as " The March of the ' 45 ".
- (5) Old customs and dialects which are fast dying out. Extracts from Regional talks are used for this ; and the recording vans are particularly useful in picking up out-of-the-way speech.
- (6) Events of everyday life likely to be of interest in the future—recordings of Hyde Park orators, and the reactions of the man-in-the-street to the September Crisis.

The Librarian of Recorded Programmes decides what is to be recorded in these six categories. The programme staff *ask* for recordings of the plays and talks I spoke of.

There are *four* types of recording :

- (a) First, there is Tape—which can be washed and used again and again, and is cheap. This is used for recording rehearsals of plays before transmission ; and, of course, almost exclusively in Empire transmissions.
- (b) Film. Used for important programmes. Symphony Concerts by the Empire Orchestra are treated in this way. It costs a lot. Film recording is permanent, and over 1,000 film programmes are stored and indexed.
- (c) Watts discs. About 400 discs are recorded every week, and the library stock is about 15,000. They are cut and edited, and usually destroyed fairly quickly. A few are kept in the library.
- (d) Permanent discs, or wax pressings from a master-disc. The most important part of the Librarian's work is to *select* the most significant extracts from broadcasts of historic interest. The Coronation of Pope Pius XII took over five hours—it has to be compressed to thirty-five minutes. Six permanent wax records are made of these extracts, and for extra safety two are stored separately.

Examples of these permanent recordings are—the Prime Minister's words on leaving for Munich by aeroplane, and on his return ; President Roosevelt's speeches, and so on.

As for the index, the following details have to be noted on the cards :

- Library number ;
- Length of record ;
- Title of record ;
- Name of speaker ;
- Short analysis of what it is all about ;
- Type of recording ;
- Whether the script is in the library ;

for, as far as possible, all subjects are kept and filed numerically—Talks from the Talks Department, and so forth.

The recording of programmes is usually done by the recording machines installed at Maida Vale. But there are two large " recording " vans—one for London, the South, West, and Wales ; the other for the North and Scotland—and a recording car used exclusively by the News Department.

I remember finding in an old *Punch* of the 'Sixties or 'Seventies a picture of a gentleman on a rainy day amusing himself by taking down songs and talks from a shelf and " turning them on " in a machine. The idea was so fantastic then as to be really laughable !

PHOTOGRAPHS AND PRINTS LIBRARY

Next the *Photograph and Print Library*, which contains 12,000 pictures all indexed and cross-indexed. We think of broadcasting as an aural, as contrasted with a visual art ; sound-drama without stage or scenery ; variety without " business " or make-up ; talks from blind mouths ; an auditory appeal in which sight has no place. And such an art it undoubtedly is. But, while it is true that programme appeal is to the

ear alone, the vast audience is not a blind one. Hence, as an important by-product of broadcasting, there has come into being its attendant literature: the *Radio Times*, with its circulation of 3,000,000; *World Radio*, of universal application; *The Listener*, a journal for the discerning; as well as a vast number of pamphlets which are almost an integral part of the series to which they refer.

These three journals are all very fully illustrated, as are the "listening" pamphlets. And the accumulated B.B.C. picture gallery contains work of extraordinary variety. There are photographs of every description, of course, but the real picture gallery consists of drawings: real portraits, of Sir Henry Wood, Mr. Middleton, and many more; half imaginary portraits: Bach on his way to the church, Handel finding inspiration for the "Messiah"; black and white jazz patterns full of life and movement, intriguing designs and cunning light effects; drawings to illustrate serial readings: the Cloister and the Hearth, or the Mill on the Floss; period pieces in the style of eighteenth-century draughtsmanship; pictures in line, or wash, or scraper-board; thumbnail sketches in pen and ink—some illustrating phrases humorously divorced from their context, others providing a sort of mild satirical commentary on the talks. There are cover designs in great variety: abstract designs, musical instruments in decorative conventional groups, frame-patterns of lace-like delicacy. Every form of technique is called into play, from wash to wood-cut.

All this goes to make up the great and growing picture department; and all have to be indexed and cross-indexed, so that they can be produced without any delay.

PLAY LIBRARY

Next I want to speak shortly about the *Play Library*, and one can classify the work of this library under three heads:

- (1) MSS, which come pouring in unasked at the rate of fifty or sixty a week;
- (2) The filing and indexing of broadcast scripts;
- (3) Answering all manner of inquiries about Drama, Variety, Features, and plays in general.

The trouble about the work of the Play Library—if you like to call it trouble—is that everything goes at such a frightful pace. Broadcast services are expanding so fast that there is no space in which to house the scripts! While scripts and information about them must be as easily accessible as possible, for it is not a question of a reader sitting and patiently awaiting his turn in the calm atmosphere of a library, but an anxious, irritated voice at the end of a telephone wanting information *instantly*! SPEED, therefore, is the determining factor in all these arrangements.

The thing has grown so incredibly fast. Four years ago there was no television; hardly any overseas broadcasts; no Spanish or Arabic programmes; and hardly any feature programmes; and all that means new dramatic work. In those days there were so few plays that they were not classified at all—merely put into boxes numbered 1 to 1,600.

Now all that is changed, and the scripts are divided into sections, thus:

- (1) Drama productions (straight plays).
- (2) Shakespeare plays.
- (3) Regional scripts (of which one copy is filed in Play Library for reference).
- (4) Feature programmes.
- (5) Religious plays.
- (6) Empire productions.
- (7) Variety productions.

The number of plays in each of these sections is roughly as follows :

(a) Drama and Shakespeare productions together	..	4,816
(b) Variety programmes		3,824
(c) Feature programmes		532
(d) Empire programmes		1,404
(e) Regional scripts		200

making a total of 10,776, roughly.

When scripts come back from the studios after a broadcast, they are sorted out into heaps on the floor according to their titles in a sort of nightmare game of patience. Then the heaps of scripts of, say, *Hamlet*, are given a title sheet for filing in the title index. This sheet gives the name of the adaptor, and producer, and author, and the date and time of production. Then the scripts are put in a file box in the appropriate section (in the case of *Hamlet* they will be filed in the section for Shakespeare plays), and the number of the box is carefully noted on the title sheet. If, therefore, somebody rings up with a query about the various productions of *Hamlet*, the title sheet is looked up and should give all the required information, and if a copy of the play is required, Box 100 marked on the title sheet should lead you straight to the box in which the particular production is housed.

Owing to copyright difficulties, scripts of broadcast plays (i.e. plays specially written for broadcasting) are not lent out to the general public. Exceptions to this rule are only made in the case of public bodies who wish to read a script which has some particular interest for them. For instance, we were asked by the Keats' Memorial Museum for the script of a Keats' programme that we broadcast ; as this museum deals with all the sources of information on Keats' life, the script was sent to them.

Play Library is responsible for borrowing and obtaining all published plays, and for handing round the scripts of plays specially written for broadcasting to the Press Department and to *Radio Times* for advance publicity. This entails a good many telephone inquiries from inside the building before a broadcast, and a great number of inquiries from outside after a production. Somebody writes, for instance, and says that he listened to a charming play about a tea-pot, and one recalls that James Bridie's *Storm in a Teacup* was recently produced, and it is to this that the correspondent refers in such vague terms. Letters are comparatively easy to answer, but it is more difficult when one has varied and peculiar inquiries at the end of a telephone, such as "Was it an alarm clock or a watch that ticked inside the crocodile in *Peter Pan*?" "Where can I find the designs for the costumes and scenery of the *Beaux Stratagem*, as produced at the Lyric Theatre, Hammersmith?" "Was it John or Lionel Barrymore who acted in *Hamlet* in London some years ago . . .?"

Most questions about stage plays can be answered by referring to

the British Drama League Library, who are always extremely helpful over these types of inquiry. In finding out whether stage plays are obtainable in published or manuscript form, one can obtain a great deal of information from such societies as the League of British Dramatists, the London Play Company, Pinker's Play Bureau, and Samuel French.

INFORMATION BUREAU

We have discussed Inquiry Bureaux *passim*: I now want to go in further detail into the matter of *Listeners' Inquiries* and how they are dealt with.

First, Inquiry by Post. It is not so extraordinary, when one remembers that some 36,000,000 listeners listen every day, to be told that a 100,000 of them write to Broadcasting House in the course of the year. The surprising thing is that they all get a reply (except the very few who obviously don't want one: the Colonel, for instance, who wrote us a post-card after listening to a political talk with which he disagreed, with the words "You stinking swine!")

Certainly no one could have foreseen a few years ago that by 1939 it would have become necessary for a special section of the staff to do nothing but answer questions and acknowledge other letters—these van-loads of mailbags every day! A 100,000 letters a year—and every one has to be considered and answered, and filed; and about 200 of these every day are *questions* that must be answered.

Most of these questions are simple enough to answer, with the help of *Radio Times* and a complete programme typed from the Announcers' Log: names of artists; numbers of gramophone records; composers of songs, or their singers; and so forth.

Other questions have to be referred to the department concerned: Who read the News Bulletin last night at 9.30? Will that talk be published in the *Listener*? Can I have a copy of the news item on the Cup Final? Can one get a song Arthur Askey has just sung on a record? All have to be answered as soon as may be.

But Broadcasting, by its very variety, has given the impression of *omniscience*, and the B.B.C. is regarded as a sort of Universal Inquiry Bureau. The family are having an argument, perhaps, or the mother has forgotten the receipt for a pudding, or someone has come across a foreign word in a book and can't translate it. The immediate reaction seems to be "Let's write to the B.B.C." This is the kind of question that comes in by every mail:

- (1) Can you tell me where I can buy a grand piano?
- (2) Can you get me Mr. Pepper's autograph?
- (3) Will you kindly tell me how to wrap up my hot water pipe before it bursts?
- (4) What is the correct way to address an Italian duchess? (inquiry from a butler).
- (5) Please tell me who was John Peel's wife.
- (6) Who invented Pêche Melba?
- (7) Can you give me advice on keeping bulldogs?

And then there are the vague people who write like this:

. . . I should be immensely grateful if you would inform me what a piece that was played by the B.B.C. would be. I think it was about three weeks ago, about 1 p.m., probably Monday, but I

cannot remember whether it was on the National. I want to obtain a record of it . . .

or this :

. . . Would you please give me a list of the items which were broadcast through a relay from a concert in Norway about a month ago, as I want to get records . . .

Quotations are constantly asked for, and lottery tickets, and tourist guides, and books on everything from wine to astronomy. Also the B.B.C. is asked to trace relations, and even to find a wife ; to announce weddings ; to send receipts for pork pies and fish and chips ; and even to supply the name of the drug which cured the Rajah Bahedar Ramdida of insomnia !

Even the parcels post comes into play. Last summer Mr. Middleton, of gardening fame, gave a broadcast talk on Insect Pests. The week afterwards our parcels post was full of boxes of bugs and beetles of every description sent in for diagnosis and advice !

And some queries are purely personal. An announcer coughs. Next day the post is full of inquiries—how is Mr. Hibberd's cold ? often enough accompanied by lozenges, gargles, mufflers. . . .

And here in passing I want to refer to a particular bureau which deals with Parliamentary questions. I reckon that on the average a question about the B.B.C. is asked in the House nearly *every day* while the House is sitting. Questions vary enormously in scope, and at times, of course, they come in a rush. The B.B.C. Annual Report to Parliament always means a lot. So do topical issues such as foreign language broadcasts, or television, B.B.C. Governors' appointments, and B.B.C. finance.

The procedure is as follows : The questions are copied from the orders of the day by the library staff and circulated to certain officials, including the Director of Home Intelligence, whose reply is sent to the Post Office authorities. (Technical questions are dealt with direct by the Post Office). The wording of answers is scrutinized, and, if necessary, altered ; and the final version is copied by the library staff and circulated to the officials concerned.

I have mentioned this procedure in some detail as the B.B.C. lives in the limelight, and at no time more so than when "questions" are being asked in Parliament. It is then more than at any other time that the noxious stories about us appear in the papers—collinnoxious stories, one might call them. And one can't be too careful about the wording of replies ! Replies to Parliamentary questions, I mean ; it is B.B.C. policy to leave stories and rumours unanswered.

TELEPHONE

And last we come to the Telephone Inquiry Bureau—the youngest born of all—the date of its birth being April, 1938. It is a twin appointment : two girls, both fluent linguists, share the hours of 9.30 a.m. to 10.30 p.m. between them, changing over at 5.30 p.m.

Normally, Mondays and Wednesdays are the busiest days—Mondays, earlier in the year, for instance, because of Inspector Hornleigh and his mysteries, of which the solutions are often challenged, and Wednesdays because of "New Voices"—but questions continue throughout the week, all sorts of questions : Who are Alexander and Mose ? When will the new Broadcasting House be finished ? What is the number of

that record that has just been played ? and inevitably, How is Mr. Hibberd's cold ? The average number of questions is seventy-five a day, though on special occasions, as after a new speech by Hitler, there are many more.

Questions are disposed of neatly, one by one, in the following ways : either at once on the telephone, or later in the day when the caller is rung up. People are astonished at the speed and dispatch with which their questions are dealt with : very many of the answers—perhaps most—being given straight away.

This is how it is done. Every day, before broadcasting begins, the *Radio Times* and the Announcers' daily duty sheets are carefully studied. Later on the programmes are copied into alphabetical order for quick reference, and there is an index system.

As well as the *Radio Times* and the Announcers' programme sheets, additional information is sent by other departments. There are separate catalogues giving full details of talks and speakers, and names and numbers of gramophone records. In short, the answers to the great majority of questions—all the *likely* questions—are all ready on the table ; and so often enough the inquirer gets his answer in a flash.

"I wonder if you could tell me the number of the record of that minuet by Frank Bridges that was broadcast in the 3.30 gramophone programme this afternoon ?" The answer comes like lightning—"HMV 6842"—or whatever it is. The listener is astounded ; but as a matter of fact the numbers of all the records were there by the telephone ! And far more difficult questions than that can be answered with equal speed and accuracy. For special booklets containing details of composers, poems, hymns, signature tunes, and all sorts of general questions are always ready to hand. Besides which the two girls have to read their papers carefully to make a study of the popularity of each item and try to anticipate those programmes which will excite most interest. Only engineering, Regional, television, and such like questions have to be referred back ; and even to these the answers are not long delayed.

The work of the Telephone Inquiry Bureau requires constant interest in all matters connected with broadcasting, and that, as you will now realise, I think, is a pretty tall order !

CONCLUSION.

Well, Ladies and Gentlemen, I have endeavoured in fifty minutes or so to take you round all the Libraries and Information Bureaux in Broadcasting House, and our revels now are ended. As you see, our work is extending and expanding out of all knowledge : we have literally grown out of "house and home," and a vast new extension is being built to accommodate us—would have been built years ago, but we had to wait till the old lady next door was dead. (I am happy to say . . . !) But we shall have outgrown the new building before we are in it ; for of the making of catalogues and indexes, and the storing of books and records there is no end.

Microphotography in 1939.

By LEONARD A. SAYCE.

In this modern world of ours, crowded already by the records of former days and embarrassed still further by the never-ending stream of contemporary documents, we find it hard to cope with our accumulated wealth of literary material. Catalogues, bibliographies and works of reference all serve as sign-posts to the scholar, but the physical bulk of the material has become so great that we have been asking ourselves whether some form of condensation is not possible. How far micro-copying can go in meeting this need is a matter that only time can show, but it has already gone far enough to deserve the earnest attention of librarians. In previous papers the author has set down some of the technical possibilities and limitations of the subject, but an extensive study of American practice and recent conversations with workers on the Continent appear to justify this further contribution on the present position.

HISTORY.

Microphotography is by no means new, for as early as 1858 Benjamin Dancer, a Manchester optician, was using a modification of the wet collodion process to make reproductions of pictures little larger than a pin's head as curiosities for the microscope. The microphotography of documents, which has come to be known as "microcopying," is hardly less venerable, for as early as 1870 Dagron used it to send long dispatches into Paris by pigeon post when the city was besieged by the Prussians. In its modern application, however, microcopying is essentially a post-War development; it arose from the use of 35mm. cinematograph film in miniature cameras of the Leica type. Even now microcopying is confined almost entirely to the use of roll-film of the two standard gauges, 35mm. and 16mm., and for the present at least, this position is likely to continue. There are certain applications of microcopying, however, notably its use for the inexpensive publication of scientific journals, where roll-film could with advantage be replaced by a single flat sheet and the author's experiments with high-resolution emulsions indicate that it is technically possible to photograph as many as 2,000 book pages upon the area of a post-card. Perhaps in the future this method may become a serious rival of the printing press, but considerable laboratory and commercial development will first be required.

THEORETICAL CONSIDERATIONS.

The fundamental disadvantage of a microcopy is its illegibility to the unaided eye, but this disadvantage is outweighed if by reason of cheapness, compactness, permanence, or ease of reference, it is desirable to reduce the size of the copy as far as possible. The limit of reduction is reached, however, when the photographic emulsion or camera lens will no longer "resolve" the fine details of the copy. Ten years ago it was the emulsion that broke down first when attempts were made

to reach the greatest possible reduction, but several special emulsions have recently been produced which have greater resolving power than the lenses now generally available. The task is now for the lens maker to produce lenses with a focal length of 2 to 3 inches, able to resolve 150 lines per mm. over a circle 50mm. in diameter. Meanwhile, with our best lenses we reach the limit of legibility when we have reduced the lower case "m" of our "micro-type" to about 0.1mm. in height. The term "legibility," however, requires qualification. Possibly a microcopy of maximum legibility might be defined as one which could be read upon the screen of a reading machine as quickly and with as little eye-strain as the original document itself. But the definition is not rigid, for in spite of much work by ophthalmic experts and psychologists, there is yet no satisfactory test for eye-strain. Laboratory work is now in progress to explore and relate these two fundamental quantities: resolving power and legibility, and when they are capable of description in simple numerical terms technical progress may be expected to be more rapid.

BASIC MATERIALS.

The basic material for almost all microcopying is roll film, either 16 or 35mm. in width, the former for small documents in general, such as bank cheques and library index-cards, and the latter for books, manuscripts, periodicals, and newspapers. Cellulose acetate base is used exclusively because unlike cellulose nitrate (the essential constituent of celluloid) it is no more inflammable than paper, and also because of its greater permanence (The American Bureau of Standards estimates that a life at least equal to that of the best rag paper is to be expected from microcopies on cellulose acetate film stored under reasonable conditions of temperature and humidity). There has been considerable discussion as to the respective merits of perforated and unperforated film. The perforated 35mm. film used in the motion picture industry has a row of sprocket holes running along each edge that restricts to 24mm. the width of film available for exposure. These sprocket holes, essential when the film is used in cinematograph cameras and projectors, are used as a convenient means of feeding the film in all but the most recent microcopying cameras. Several makers, however, have recently introduced cameras which do not require such sprocket feed and make it possible to use unperforated film. Advocates of this practice point out that it saves the wastage of nearly 30 per cent of the film and allows large sheets of text to be photographed at a reduction that imposes less of a tax upon the resolving power of the lens and film. This argument applies particularly to newsprint, which, in America, is generally copied on unperforated or single-perforated film. On the other hand, most of the reading machines in use at present will project only the smaller format of perforated film and it would certainly be a pity if anything were done to make them obsolete. This matter was the most contentious raised at Zürich this summer during the F.I.D. Conference, and a Committee of international experts succeeded in reaching a satisfactory compromise. It was recommended that if unperforated film be used to copy documents less than 15 inches in width the photograph should occupy not more than 24mm. in the middle of the film. Such microcopies

would thus be quite suitable for reading machines intended for perforated film. It is expected that this recommendation and a number of others intended to guarantee uniformity of microcopies produced in all parts of the world will be endorsed by the International Standards Association at its next meeting.

CAMERAS.

Considerable progress is being made in the design of cameras intended for literary microcopying. These may be grouped into three categories. The first and simplest are intended for the individual scholar and small library having a limited amount of copying to do and consist of such cameras as the Ludwig-Ott in America and the Sayce-Watson in England. In this class also may be included the considerable number of miniature cameras, of which the Leica and Contax are the best known, intended for general photography but which can be modified more or less simply for documentary copying. The microcopies produced by such simple apparatus need be in no way inferior to those turned out by more ambitious cameras; the only disadvantage is their comparative slowness, for they are entirely manually operated.

The second class of cameras are well represented by the Photo-record camera (Graflex Corp'n.). They are semi-automatic and are called "portable," though "transportable" would be a more accurate term. The Photo-record itself is normally operated by a pedal which forces compressed air to the film-transporting mechanism and the shutter after first switching on the lights to full brilliancy. It has proved to be a very useful piece of apparatus and is much used in medium-sized libraries.

Only the largest institutions can afford the third type of camera, for its large capacity for rapid work is only obtained at considerable cost. The Recordak Sliding-Cradle camera for bound volumes of newspapers is one of several cameras in this class which have reached a very high standard of automatic operation; they will photograph many hundreds of pages an hour, for the only manual operations after the machine is adjusted are the turning of the pages and the pressing of a switch.

In addition to the above types of cameras, mention should be made of the "rotary" cameras which are not intended for library use but which have found great application in commercial undertakings and government departments. These cameras photograph the document while it is in motion through the machine and so they are able to deal only with unbound material. The commonest size employs 16mm. film but several 35mm. machines are in use for copying unbound newspapers. The capacity of these machines is almost incredible for one of them will copy a month's output of a newspaper office in half an hour.

PROCESSING.

The development, fixing, washing and drying of microcopies follows in general the technique of the cinematograph industry, save that there are few plants with an output sufficient to justify continuous operation. A device known as the "Stineman reel" is very popular in America;

in it, up to 200ft. of exposed film is coiled in an open spiral, and developed in a shallow tank. As this 200ft. represents 3,200 pages of the average microcopy, or 1,600 pages of newsprint, the method is suitable for all but the largest undertakings. Considerable attention must be given to the adequate fixing and washing of microcopies if the image is to be as permanent as the film base itself, but with due precautions this matter presents no difficulty.

STORAGE OF MICROCOPIES.

Most of the libraries in America are content to store their microcopies in roll-form upon metal spools, the whole being protected by a cardboard or metal box. The quantity of film has not yet reached the point where the difficulty of cataloguing and locating material is serious, but the ideal system has still to be evolved. The "strip system" developed at King's College, Newcastle, fully meets the need of the scientific worker by making the film library its own index, but the method does not permit the rapid scanning of a book or collection of documents. It seems that there is a place for both the "spooled" and the "strip" microcopy, each for its own special purpose.

READING MACHINES.

The purpose of literary material is that it should be readable, and it is unfortunate that microcopies should be illegible to the unaided eye. A simple magnifying glass is out of the question for serious work, and the binocular microscope, though advocated by Bendikson and van Iterson, is inconvenient. We are, then, made to fall back upon some form of optical projection on the principle of the "magic lantern." Projection upon the wall of a darkened room being out of the question, we require both lantern and screen in one device, and the design of such reading machines has proved more difficult than any other link in the microcopying chain. After much discussion, and many experiments, the use of a translucent screen has become standardised, the image being projected upon the back of the screen and read from the front. The latest reading machines in America, made by Kodak, of Rochester, N.Y., Graphic Service, of Boston, and Holbrook Microfilms of New York, are all designed for dealing with newsprint, and all are provided with variable magnification whereby the microcopy may be scanned page by page and a selected item magnified up to fill the whole screen. Such reading machines are expensive, and though one or two rather less ambitious machines are on the market (a very good one has just been produced by Zeiss Ikon in Germany), yet it remains true that there is no simple and really inexpensive reader available to the small library and individual scholar. Many people have extemporised their own by making use of inexpensive "film-slide" projectors, but the main problem remains, and it is to be hoped that the prize competition now being held in France, under official auspices, will produce the ideal apparatus.

THE ACHIEVEMENTS OF MICROPHOTOGRAPHY.

Microcopying is now showing an impressive amount of activity in library and university work in America. The most ambitious and

fully equipped installations are probably those at the Library of Congress in Washington and the University of Chicago, whilst in the application of microphotography to archives and indeed in the whole microcopying movement in America, special mention must be made to the work of Dr. Vernon Tate, of the National Archives in Washington whose editorship of the *Journal of Documentary Reproduction* and sane judgment on all matters appertaining to microphotography is of outstanding influence. The above institutions, though specially important, are typical of many others in all parts of America. Their work consists in copying material which is falling into decay, particularly newsprint, in supplying copies of rare and unique works, and in making copies of portions of journals and books required by workers at a distance, much as is done, though more expensively, with photostats by our own learned societies. Much importance is attached in America to the preservation of newspapers, and many libraries are actively microcopying all their files before it is too late. Current newspapers too are being dealt with; over fifty newspapers in the United States now offer microfilm editions and librarians have been quick to appreciate the advantage of a spool of microfilm over an untidy parcel of perishable newsprint. Mr. K. D. Metcalf, of the Harvard library, is sponsoring the copying of the current numbers of no less than thirty-seven foreign newspapers and a number of libraries are co-operating in the scheme. The *Boston Pilot* from 1827-1938 is being copied by the Graphic Service (a private firm in Boston, one of several that are springing up to meet the growing demand) and the Eastman Kodak Company are concerned with the copying of about a hundred back and current newspapers, some of them in Mr. Metcalf's scheme.

In the field of historical research, apart from newspapers, Dr. H. L. Raney, of Chicago University Library, is fathering a plan for copying all the British Parliamentary Papers from the earliest up to those of the nineteenth century, the University of New Mexico is copying much historical material in Spanish, Mexican and Italian, the University of Texas has copied in the field more than half a million pages relating to the history of Texas, and the University of California is making a collection of microcopies of Record Office material relating to American imports and exports prior to 1783. A great deal of valuable work is being done by a small but progressive firm, University Microfilms, of Ann Arbor, Michigan, whose director, Mr. Eugene Power, has arranged to draw on the resources of many European collections for the American scholar. His work on the copying of early English books up to 1640 is well known and he now plans to supplement this by a title-page index of all early English books. He has also developed a method of thesis publication, already adopted by eight universities, which has much to recommend it in regard to papers and theses for which the probable demand does not justify the cost of printing. The method consists of keeping the theses themselves in the form of negative microfilm and of publishing "author abstracts" in the form of a printed journal. Any reader of the journal who desires to consult a complete original document may at a nominal cost obtain a positive copy of it, made from the microfilm negative. Such a scheme as this would seem to provide a relief for many a harassed editor of our scientific journals.

Another organisation for helping the individual scholar is the Biblionfilm Service operated from the Department of Agriculture at Washington. This undertakes to furnish copies of almost any technical paper in the Washington libraries and is at the service of workers in all parts of the United States.

Although the primary purpose of this paper is to review library and scholastic uses of microcopying, some reference must be made to its commercial and administrative uses. In the commercial world microcopying is rapidly becoming an accepted part of office routine, and is used by banks, insurance companies, department stores and large concerns of all kinds. The equipment is generally, though not exclusively, that supplied by the Recordak Corporation, a subsidiary of Eastman Kodak, who also do the necessary processing of the microfilm. Some idea of the immense amount of work turned out is given by the fact that no less than 3,000 million items of microcopy passed through the laboratories of this one firm during the year May 1st, 1938, to May 1st, 1939. About 3,000 Recordak cameras are now in use, over 250 of them in England.

In government administrative departments in America the achievements of microphotography are also impressive. The Census Bureau has used about seven miles of microfilm in recent years, and the Social Security Administration at Baltimore has stored the records of forty-five million workers on 16mm. film in a neat row of filing cabinets. Reference to any one record card out of this immense total can be made in about 45 seconds! The author required a practical demonstration to convince him of this astonishing fact, which is surely a remarkable testimony to the value of microcopying for statistical purposes. One wonders how much time and expense could have been saved if our own Government authorities had been alive to the possibilities of microfilm technique in connection with the recent National Registration.

Enough has been said to show that in America, at any rate, microcopying has long passed the experimental stage. It is evident too that although its library and academic uses are extensive these represent relatively a small proportion of the total. On the whole this is to the advantage of the librarian, for it enables him to obtain apparatus made in larger quantities and therefore more cheaply than could be justified by his relatively small demands. It is important, however, that his special needs should not be overlooked, for the material of the scholar usually requires a higher technical standard than that of the business man who is dealing only with present-day documents. In America, as elsewhere, the most pressing need is for an inexpensive and efficient reading machine. Unfortunately, efficiency necessitates the use of expensive optical components and well-made mechanism and the market for the machines is not large enough to justify the adoption of mass production methods. It is certain, however, that a good microfilm reader at the price of, say, a portable typewriter, would so increase the use of microcopies that there would be no lack of demand for it.

Compared with its rapid adoption in America the growth of microcopying in Europe has been slow and very cautious. Germany, however, now seems to be convinced of its value and at the commencement of the war was embarking on an ambitious scheme for providing

about 600 libraries each with a microfilm camera and projector. The scheme was under the direction of Dr. Schürmeyer, late director of the Bibliothek für Kunst und Technik at Frankfurt, and the necessary apparatus was to be rented to the libraries concerned.

In France there is a steadily increasing interest in literary micro-copying, inspired mainly by the Bibliothèque Nationale and M. Bourgeois of the Maison de la Chimie.

In Great Britain there has recently been much commercial micro-copying as an insurance against air raid damage to business and legal documents, but literary applications are still almost entirely undeveloped. Research work, however, particularly in respect to fundamental technical matters, is proceeding actively at King's College, Newcastle-upon-Tyne, and the author and his colleague, Mr. B. S. Page, the College Librarian, are at all times pleased to give the fullest information and demonstration to all who may be interested. What is now required is for some central library, preferably in London, to take the lead in this country by establishing a well-equipped micro-copying bureau. Under energetic direction and with the sympathy of our great repositories of documentary material such an enterprise would be of the utmost importance to scholarship and research.

Report of the Fourteenth Annual General Meeting

The Fourteenth Annual General Meeting of members and associate members was held at 2.15 p.m. on Friday, November 24th, 1939, at the Science Museum, South Kensington, London, S.W.7.

Present : Thirty members and associate members were present.

Chairman : Mr. Arthur F. Ridley (Chairman of the Council of the Association) acted as Chairman of the meeting.

ITEM I. Minutes of the Last Annual General Meeting.

The Minutes of the Thirteenth Annual General Meeting, having been printed and circulated with the last Conference Report, were taken as read. The Chairman drew attention to a typographical error by which a line of print had been omitted in Item III. The correct version should read as follows, the words in italics being those omitted in the copies as originally circulated :

ITEM III. Election of Council and of the Honorary Officers.

The Chairman announced that the list of Council and Officers had been circulated, and suggested that the elections and re-elections should be taken *en bloc*. On the proposal of Mr. Eric Simons, seconded by Mr. H. L. Jackson, it was unanimously agreed that Sir William Beveridge, K.C.B., F.B.A., LL.D., B.C.L., should be elected President of the Association, that Mr. A. F. Ridley *should be re-elected Honorary Treasurer, and that Mr. Edward Carter should be re-elected Hon. Secretary*, and that the following should be re-elected as members of the Council : Mr. B. C. Curling, Miss B. M. Dent, Mr. A. Farquharson, Dr. E. E. Lowe, Mr. F. C. Mitchell, Mrs. C. S. Orwin, Miss E. W. Parker.

This correction having been accepted, it was agreed that the Minutes should be confirmed and signed as correct by the Chairman.

ITEM II. Audited Statement of Accounts for 1938-39.

The Audited Statement of Accounts, which had already been circulated, was presented by the Hon. Treasurer, MR. A. F. RIDLEY, whose motion for the adoption of the Accounts, seconded by MR. F. HENN, was carried unanimously.

ITEM III. Election of Council.

The Chairman drew attention to the list of eight members of Council that had been circulated with the Agenda. These were due to retire by rotation under Article 25 of the Articles of Association, and being eligible, offered themselves for re-election. Further he was glad to report that Mr. W. M. Willcox had been nominated as representative of the British Council and that Mr. O. F. Brown had been nominated as representative of the Department of Scientific and Industrial Research. The election and re-election of these members of Council was then proposed by MR. H. L. JACKSON, seconded by MR. W. J. GALLAGHER, and carried unanimously.

ITEM IV. Election of the President and Honorary Officers.

On the proposal of the Chairman, it was unanimously agreed to elect Sir Harry Lindsay, K.C.I.E., C.B.E., Director of the Imperial Institute, as President of the Association for the year 1939-40.

On the proposal of Mr. J. E. WRIGHT, seconded by Mr. B. FULLMAN, it was agreed that Mr. A. F. Ridley should be re-elected Honorary Treasurer and Mr. Edward Carter should be re-elected Honorary Secretary.

ITEM V. Appointment of Auditors.

MR. W. J. GALLAGHER put forward the motion That Messrs. West and Drake be and hereby are re-elected Auditors to the Association until the next Annual General Meeting at the same fee as for the previous year. The motion was seconded by Mr. F. HENN and was carried unanimously.

ITEM VI. Report of the Year's Work of ASLIB.

Mr. A. F. Ridley then presented the Report of the Year's Work of the Association. The summary which had been circulated (see page 7) had been printed before the outbreak of war, and the cancellation of the ASLIB Conference and some supplementary comments were therefore desirable. Mr. Ridley began by thanking the authorities and Mr. Lancaster-Jones for their kindness in allowing the Annual General Meeting, postponed from the date of the Conference as arranged, to be held in the Lecture Hall of the Science Museum. He then passed on to one or two projects raised at the 1938 Annual General Meeting and not touched upon in the printed Report. Plans for sectional meetings of members had been prepared by the Hon. Officers along the lines outlined by the Hon. Secretary at the previous Annual General Meeting, but the atmosphere of political tension and general uncertainty that had prevailed since September 1938 had not been conducive to the successful launching of such meetings, and they were therefore being held in abeyance until a more favourable occasion.

The necessity for a second edition of the *ASLIB Directory* had also been stressed at the last Annual General Meeting. The Directories Committee had estimated that the cost of this, including editorial work, might be of the order of £2,000, and had, therefore, attempted to secure financial help from, first, the Carnegie United Kingdom Trustees and, secondly, the Royal Society. The latter body had kindly promised a donation towards the scheme under certain conditions that had not yet been fulfilled. In the summer the Committee were considering the possibility of approaching an outside publisher, but the outbreak of war made it necessary to re-consider the whole project. In the present circumstances, ASLIB might in fact consider itself fortunate in that it had not embarked upon such a costly undertaking, more particularly since war conditions would inevitably produce many changes in the sources of information which would be included. The Council had not, however, forgotten that to act as a guide to sources of information was the basic policy of the Association, and although a new edition of the *Directory* in its present form was not practicable for the moment, the Council were in fact preparing to consider what new method of making information accessible could be adopted.

The Chairman then went on to speak of ASLIB's future under war

conditions. The need for a clearing house for information was accentuated rather than decreased, and at present it was the aim of the Council to keep on the publications and work of the Association as normally as possible. It would be too much to expect that the war would have no effect upon its finances, but so far there had been no sign of a falling off of membership, and the subscriptions to the *Book-List* were coming in as usual. There had been no special ventures in publication during the past twelve months but it had been a year of steady work and consolidation of effect. The Chairman closed his remarks with a few words of thanks to the General Secretary and Staff of ASLIB for their work, and a special note of thanks to Miss M. Cursiter who gave invaluable help during the illness of the General Secretary. The Chairman then proposed the acceptance of the Report, which was seconded by Miss M. SHAW and carried unanimously.

In the general discussion which followed, MR. E. LANCASTER-JONES reported on the progress of the English (fifth) edition of the *Universal Decimal Classification*, which was being prepared under the auspices of the Joint Committee of ASLIB and the B.S.I.B. The German (fourth) edition had been completed up to the end of Class Six, section two, but so far only Class O and Class Five of the English edition had been undertaken. Of the latter class two-thirds had been printed and the last parts were in the Press. Mr. Lancaster-Jones stressed the fact that it was very desirable that Classes One, Two, Three, and Four of the English edition should be prepared soon, and asked if any members of ASLIB could help. MR. L. WHARTON spoke of his work on Class Four and elicited that although the English edition should take account of the German edition, it need not be in any sense purely a translation, but could incorporate improvements.

MR. LANCASTER-JONES also emphasised the view that ASLIB should adopt a bold policy in time of war and that it should not hesitate to venture on new undertakings.

ITEM VII. ASLIB Meetings in Time of War.

The members discussed the possibility of holding meetings in time of war. It was emphasised by MISS L. G. THOMERSON, MR. C. H. GRAY, MR. E. LANCASTER-JONES, and others that some form of meetings were very desirable in order to give members the opportunity of meeting each other. Mr. Lancaster-Jones stated that he thought it would be possible to obtain the use of the Science Museum Lecture Hall for afternoon meetings, and it was agreed that the experiment should be tried of meetings, with tea, between 4 and 6 p.m., to discuss certain of the papers that had been prepared for the 1939 Conference, and that would be published in the Report.

The meeting was then adjourned.

ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION BUREAUX.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30TH JUNE, 1939.

Dr.		Cr.	
1938	1939	1938	1939
£ s. d.	£ s. d.	£ s. d.	£ s. d.
EXPENDITURE.			
To GENERAL EXPENDITURE—			
484 17 6	Salaries	496 2 0	
114 13 2	Rent, Lighting and Telephone	105 4 2	
124 7 6	Printing, Stationery, Postage, and Office Expenses	130 0 11	
3 5 8	Insurance	3 5 8	
1 17 3	Reference Books	1 15 5	
6 9	Travelling Expenses	19 6	
2 2 0	Press Cuttings	2 2 0	
5 5 5	Audit Fee	5 5 0	
6 17 3	Depreciation of Furniture and Fittings	6 3 5	
COST OF PUBLICATIONS—			
75 17 4	Book-List	83 10 10	
25 8 6	Bulletin	20 19 6	
20 14 9	Miscellaneous	11 13 9	
COST OF 1938 CONFERENCE (excluding proportion of Staff Salaries and Office expenses)			
249 2 3	Expenses	163 15 2	
92 12 6	Printing of Report	93 8 9	
26 1 5	COST OF LUNCHEON	257 3 11	
4 18 5	TRANSLATORS' PANEL EXPENDITURE	21 12 10	
55 6 9	BALANCE, being excess of Income over Expenditure, carried to Balance Sheet	5 11 6	
£1293 14 0		18 19 8	
		£1170 10 1	
INCOME.			
By GENERAL INCOME—			
	Membership Subscriptions	646 15 6	
	Sundries	20 4 6	
	SALES OF PUBLICATIONS—		
	Book List	111 9 1	
	Annals List	5 19 10	
	Select List	29 11 10	
	Directory	8 9 9	
	CONFERENCE RECEIPTS—		
	Fees and other Receipts	354 9 4	
	Sales of Reports	65 7 2	
	Advertisements in Report	15 5 6	
	LUNCHEON RECEIPTS	32 0 0	
	TRANSLATORS' PANEL RECEIPTS	4 1 6	
		385 10 7	
		26 17 0	
		3 5 0	
		£1170 10 1	

BALANCE SHEET — 30TH JUNE, 1939.

[illegible]

(Signed) ARTHUR F. RIDLEY, Hon. Treasurer.

We have audited the above Balance Sheet and have obtained all the information and explanations we have required. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the Association's affairs, according to the best of our information and the explanations given to us and as shown by the books of the Association.

(Signed) WEST AND DRAKE, Chartered Accountants.

5th July, 1939.
8, New Court, Lincoln's Inn, W.C.2.

The National Central Library.

Report from Dr. Luxmoore Newcombe.—Thanks largely to the generous increases in annual subscriptions from library authorities and the resulting increase in the grant-in-aid from His Majesty's Treasury, the financial anxieties of the Trustees of the Library during the year 1938-39 have been less acute than during previous years. Unfortunately, however, the uncertainty of the continuance of the grants received from the Treasury and the Carnegie Trust is still a serious drawback to the development of the Library. The total sum received in the form of subscriptions from library authorities was £3,132, which, with the grant of £5,000 from the Treasury, £4,000 from the Carnegie Trust, and grants from other bodies, gave the Library a total income of £13,534.

The total number of books lent between libraries of all types in the British Isles was 145,726, an increase of 6,380 on the total for the previous year. Much of the increase is attributable to the regional systems, the establishment of which has created a greater demand by making more widely known the possibility of obtaining books once beyond the reach of many readers. Apart from actual issues of books the amount of work the National Central Library is called upon to do in connection with applications also continues to increase. This work includes the supply of bibliographical information, as well as a good deal of bibliographical research needed to supplement or correct the information given on application forms. In this connection invaluable assistance has been rendered by the librarians of libraries of all types, especially those in charge of the special Outlier Libraries, who are experts in the literature of their own subjects. Much valuable help has also been given by specialists at the British Museum and other Government libraries, as well as by members of the teaching staff of some of the universities.

The group of Outlier Libraries associated with the National Central Library now includes 113 special libraries. 11,361 books were lent by the Outlier Libraries during the year, an increase of 1,023 on the number for the previous year. It is appreciated that in a great many cases the library supplying a book has been the only possible source from which that particular book could have been obtained.

The nine Regional Systems now covering the whole of England and Wales, with their total of 479 co-operating libraries, were able to lend a total of 57,135 books, an increase of 5,713 on the figure for the previous year. The co-operating libraries include eighteen university libraries and fifty special libraries. In addition to lending 959 books to libraries in their own regional areas, the university libraries have lent 3,343 books to other libraries through the National Central Library.

There is an increase of 35 in the number of books borrowed from libraries in foreign countries for the use of libraries in the British Isles, 283 books having been borrowed from libraries in sixteen countries, as compared with 248 books from libraries in fifteen countries in the previous year. In return, British libraries have been able to lend to libraries in twenty-four foreign countries 508 books, as compared with 415 books to libraries in twenty countries in the previous year. British libraries continue to lend many more books than they borrow (508 as against 283) but four countries have each lent more than they have borrowed.

The total number of books on which the National Central Library is now able to draw (apart from those available in foreign libraries) is over twenty-one and a quarter million. Although only a small proportion of this total is as yet included, the union catalogues are making steady, though slow, progress; those in the National Central Library containing 2,696,000 entries, and those in Wales 645,000 entries, a total of 3,341,000 entries. The *Union Catalogue of the Periodical Publication in the University Libraries of the British Isles* is proving an invaluable tool in connection with the many applications received for volumes of periodicals. In addition to the published volume the staff of the National Central Library have the advantage of access to the many thousand entries which for one reason or another are not included in the printed Catalogue, and these entries often provide information not obtainable elsewhere. By means of a generous grant from the Carnegie United Kingdom Trust the Catalogue is now being kept up to date by the inclusion of all amendments and additions which the university libraries have continued to supply since the publication of the Catalogue. The grant renders the upkeep of the Catalogue secure for a period of at least five years.

The Bureau of American Bibliography, established in 1938 by means of a generous grant from the Rockefeller Foundation and the gift by the Library of Congress of a complete set of their printed catalogue cards, is now fully organised and equipped, and has already demonstrated its value as a source of information about American books. In addition to its value to librarians and other persons throughout the country, the Bureau has been of considerable assistance to the staff of the Library, having reduced by half the research formerly necessary at the British Museum.

Index.

NOTE.—*This is not a complete subject index to the contents of the papers, but only to the names of speakers and the titles of papers, etc. Copies of the previous Reports can be obtained from the office of the Association*

	PAGE
Accessibility of British University Thesis Literature	21
Accessibility of Thesis Literature of the United States	31
Agriculture: an Art or an Industry?	36
ASLIB:	
Annual Accounts	87
Annual General Meeting	84
Council and Committees	1, 7, 84
Enquiry Bureau	8
Finance and Membership	7
Luncheon	9
Publications	8
Register of Specialist Translators	8
Report on Year's Work	7, 85
Authors' Abstracts as an Aid to Documentation	41
BAIRD, T.	50
B.B.C. Libraries and Information Bureaux	62
CAIN, J.	35
Cinema and the Information Services	50
DAVIES, WATSON	31
Errata and Corrigenda	46
FULCHER, DR. G. S.	41
GOLDSMITH, DR. J. N.	46
Imperial Institute as an Information Centre	10
Information Bureaux, B.B.C. Libraries and	62
Information Centre, Imperial Institute as an	10
Information Services, The Cinema and the	50
Introductory Note	6
LINDSAY, SIR HARRY	10
Microphotography in 1939	77
National Central Library	89
NEWCOMBE, DR. L.	31, 89
Notes on Thesis Literature in France	35
ORWIN, C. S.	36
POCOCK, GUY	62
Register of Technical House Journals	35
SAYCE, DR. L.	77
Technical House Journals, Register of	35
Thesis Literature, Accessibility of British University	21
Thesis Literature in France, Notes on	35
Thesis Literature of the United States, Accessibility of	31

LEWIS'S LIBRARY

MEDICAL, SCIENTIFIC AND TECHNICAL

Annual Subscription from ONE GUINEA

THE LATEST WORKS OBTAINABLE WITHOUT DELAY

EXCHANGES (Ground Floor) READING ROOM (First Floor)

Detailed Prospectus on application

Bi-monthly List of Additions post free on application

Adjoining
University College

BOOKS

Established
1844

SCIENTIFIC & TECHNICAL

SPECIAL DEPARTMENT—CLASSIFIED

NEW :: FOREIGN :: SECOND-HAND

H. K. LEWIS & Co. Ltd.

MEDICAL, SCIENTIFIC & TECHNICAL BOOKSELLERS

136 GOWER STREET :: LONDON, W.C.1

Telegrams : PUBLICAVIT, WESTCENT, LONDON

Telephone : EUSon 4282 (5 lines)

★ Foyles

BOOKSELLERS TO THE WORLD

MOST OF THE PRINCIPAL LIBRARIES USE & RECOMMEND OUR SERVICE

New and secondhand books on every subject.

Stock of nearly three million volumes in stock.

Catalogues free on mentioning interests.

113-125 CHARING CROSS ROAD, LONDON, W.C.2

Telephone : GERRARD 5660 (16 lines)
